



THE UNIVERSITY *of* EDINBURGH

This thesis has been submitted in fulfilment of the requirements for a postgraduate degree (e.g. PhD, MPhil, DClinPsychol) at the University of Edinburgh. Please note the following terms and conditions of use:

This work is protected by copyright and other intellectual property rights, which are retained by the thesis author, unless otherwise stated.

A copy can be downloaded for personal non-commercial research or study, without prior permission or charge.

This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the author.

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the author.

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given.



The impact of relational trauma on children and foster carers of children
who are looked after away from home

Research Portfolio

Julia Rebecca Louise King

Doctorate in Clinical Psychology

University of Edinburgh

October 2017

DClinPsychol Declaration of Own Work

Name: Julia Rebecca Louise King

Title of Work: The impact of relational trauma on children and foster carers of children who become looked after away from home

I confirm that this work is my own except where indicated, and that I have:

- Read and understood the Plagiarism Rules and Regulations
- Composed and undertaken the work myself
- Clearly referenced/listed all sources as appropriate
- Referenced and put in inverted commas any quoted text of more than three words (from books, web, etc.)
- Given the sources of all pictures, data etc. that are not my own
- Not made undue use of essay(s) of any other student(s), either past or present (or where used, this has been referenced appropriately)
- Not sought or used the help of any external professional agencies for the work (or where used, this has been referenced appropriately)
- Not submitted the work for any other degree or professional qualification except as specified
- Acknowledged in appropriate places any help that I have received from others (e.g. fellow students, technicians, statisticians, external sources)
- Complied with other plagiarism criteria specified in the Programme Handbook
- I understand that any false claim for this work will be penalised in accordance with the University regulations
- Received ethical approval from the School of Health in Social Science, University of Edinburgh
OR
- Received ethical approval from an approved external body and registered this application and confirmation of approval with the School of Health in Social Science's Ethical Committee

Signature:



Date: 30 October 2017

Acknowledgements

First and foremost, I wish to thank all of the foster carers and education staff who kindly gave up their time to participate in this research, as well as the organisations that supported the research, without whom none of this would have been possible.

I would like to thank my academic supervisors, Dr Jill Cossar and Dr Emily Newman who have both provided such helpful input. Jill, for all her support and advice not only whilst carrying out my thesis but throughout the whole of my training, and for her thoughtfulness in helping me to contain my anxieties in earlier stages of this project! Emily, for her supervision in the latter stages of this thesis, including her statistical advice and timely and invaluable comments on drafts of the thesis manuscript. Thanks also to Dr Helen Minnis for input with the research design, and to Shri Cameron for providing interrater coding for the systematic review.

I would like to express sincere thanks to my clinical supervisor Dr Lucie Mackinlay for her support and encouragement throughout this project, particularly her help with recruitment challenges. In addition to providing advice and encouragement for my research, Lucie supervised me for the two years I was based in the looked after children's service and I have been greatly inspired by her knowledge, tenacity and ingenuity in working with this population.

I would also like to thank my family and friends who have provided support throughout this process – especially to David, who has always been at hand to provide encouragement, care and cups of tea when needed. Thank you for dealing with all my angst so patiently, I couldn't have done this without you!

Finally, I wish to extend a special note of thanks to Anna and Lucy, my wonderful girls.....for helping me keep perspective on what's most important in life.

Table of Contents

DClinPsychol Declaration of Own Work	ii
Acknowledgements.....	iii
List of tables and figures	vi
Research Portfolio Abstract	8
Journal Article I: Systematic Review	9
Abstract	10
1. Introduction	11
2. Method	17
2.1 Search Strategy.....	17
2.2 Critical appraisal of included studies	19
3. Results.....	20
3.1 Description of included studies.....	20
3.2 Executive function composite.....	26
3.3 Inhibitory control.....	26
3.4 Cognitive flexibility.....	27
3.5 Executive working memory.....	28
3.6 Planning/problem solving.....	29
3.7 Fluency.....	29
3.8 Decision making.....	30
4. Discussion	31
4.1 Limitations of the review.....	35
4.2 Conclusions.....	38
5. References	39
Journal Article II: Empirical study	53
Abstract	54
1. Introduction	56
2. Method	59
2. 1 Design.....	59
2.2 Participants.....	59
2.3 Procedure	59
2.4 Measures	60
2.5 Potential covariates.....	62
2.6 Data analysis	62
3. Results.....	63

3.1 Demographics	63
3.2 Child difficulties.....	63
3.3 Comparison of foster carer and teacher rated child difficulties.....	66
3.4 Outcome variables: foster carer factors.....	69
3.5 Relationships between child difficulties and parenting stress and sense of competence in foster carers	70
3.6 Explaining parenting stress and sense of competence.....	72
4. Discussion	77
4.1 Investigation of attachment and trauma related difficulties in foster children ..	77
4.2 Relationships between perceived child difficulties and parenting outcomes ...	78
4.3 Clinical and practice implications	80
4.4 Limitations of study.....	81
4.5 Conclusions.....	83
5. References	85
Thesis References	92
Appendices	112
Appendix 1: Author guidelines for Child Neuropsychology	113
Appendix 2: Studies excluded from Systematic Review.....	119
Appendix 3: Systematic review quality criteria	122
Appendix 4: Summary of quality ratings.....	125
Appendix 5: Author guidelines for Child: Care Health and Development.....	126
Appendix 6: Participant information sheet	135
Appendix 7: Participant Consent Form	137
Appendix 8: Teacher information sheet.....	138
Appendix 9: Strengths and Difficulties Questionnaire.....	140
Appendix 10: Relationship Problems Questionnaire: Carer report.....	142
Appendix 11: Relationship Problems Questionnaire: Teacher report.....	143
Appendix 12: Brief Assessment Checklist for Children.....	144
Appendix 13: Child-Parent Relationship Scale.....	145
Appendix 14: Parenting Sense of Competence Scale.....	146
Appendix 15: Parenting Stress Index – Short Form	147
Appendix 16: Depression Anxiety and Stress Scales-21	148
Appendix 17 Demographic information sheet	149
Appendix 18: Ethical Approval - The University of Edinburgh.....	151
Appendix 19: Ethical Approval - Social work departments	152

Appendix 20: Thesis proposal form	157
Appendix 21 Data Exploration - missing data.....	176
Appendix 22 Data Exploration – assessment of potential covariates.....	177

List of tables and figures

Figure 1: Flow diagram of study selection based on Prisma guidance.....	18
Table 1: Characteristics of studies included in review	21
Table 1. Characteristics of foster carers, the children in their care and placement (n=52).....	64
Table 2. Means, standard deviations (SD) and range of obtained scores on the child variables (n = 52).....	65
Table 3. Means, SD and range of foster carer and teacher SDQ and RPQ scores (n=32), and interrater agreement (independent samples t-test).....	68
Table 4. Means, standard deviations (SD) and range of obtained scores on the foster carer variables (n = 52).	69
Table 5. Pearson correlations between predictor and outcome variables.	71
Table 6. Coefficients obtained for the variables shown by the regression model to explain quality of the foster carer-child relationship.....	74
Table 7. Coefficients obtained for the variables shown by the regression model to explain parenting stress.....	75
Table 8. Coefficients obtained for the variables shown by the regression models to explain parenting sense of competence.	76

Research Portfolio Abstract

Background: Maltreated children, including those who are looked after away from home, are amongst the most vulnerable members of society. Due to the relational trauma that most looked after children have experienced they are at increased risk of attachment and mental health difficulties, which can impede their ability to form close relationships with new carers. Indeed, many such children behave in ways that fail to elicit caregiving or even as if they do not need caregivers, and providing sensitive, therapeutic care to these vulnerable children can be a considerable challenge.

Aims: The aims of this thesis were threefold: to review the impact of maltreatment experiences on children's executive functioning, to investigate the prevalence of attachment and trauma-related difficulties in children in foster care, and their impact on the parenting task of foster carers.

Methods: Aims are addressed in two journal articles. To address the first aim, a systematic review of research regarding the association between maltreatment and executive function in children and adolescents is presented in journal article one. Subsequent aims are addressed in journal article two, a cross-sectional study with foster carers of children in care aged 3-12 years who completed self-report measures investigating the emotional, behavioural, attachment and trauma related difficulties of their foster child, the perceived quality of the relationship, and levels of parenting stress and sense of competence.

Results: The systematic review revealed that the majority of studies demonstrated a significant impairment in one or more areas of executive ability in maltreated children, with particular support for impairments in inhibitory control, executive

working memory and decision making. However, there was only limited support for impairments in cognitive flexibility, planning/problem solving, and fluency. Furthermore, there was considerable variability between studies in the specific deficits reported. Results from the empirical study highlight the prevalence of attachment and trauma-related difficulties in children in foster care. Hierarchical regression analyses revealed that levels of foster carer-rated inhibited attachment behaviour was a significant predictor of quality of the foster carer-child relationship and parenting stress. The level of emotional and behavioural difficulties also emerged as a significant predictor of quality of the foster carer-child relationship, and parenting sense of competence.

Conclusions: This thesis highlights the pervasive impact of relational trauma on children. Results of the systematic review indicate its impact on children's executive ability. The empirical study reveals the high prevalence of attachment and trauma-related difficulties in children in foster care, and provides insight into factors related to quality of the foster carer-child relationship, and the stress and sense of competence of foster carers. Implications for interventions and service provision regarding maltreated children who become looked after away from home, and their carers, are discussed.

Journal Article I: Systematic Review

The impact of maltreatment experiences on executive functioning
in children and adolescents: a systematic review

Prepared in accordance with guidelines for *Child Neuropsychology* (Appendix 1).

Word count: 6955

Abstract

Childhood maltreatment can have enduring effects on brain development, and maltreated children are amongst the most vulnerable members of society at greater risk of poor long-term outcomes, with significant societal and economic implications. Maltreated children show poorer behavioural outcomes compared with nonmaltreated peers, with higher levels of internalising and externalising behaviours, and poorer emotional and behavioural regulation. One possible reason for the poorer behavioural outcomes is impaired executive functioning (EF), which is vital for academic and social success as well as everyday living. This systematic review investigates whether executive function (EF) is impaired in maltreated children and whether this is independent of any impairment in global intelligence. 17 studies met eligibility criteria; these included children who had experienced physical, sexual or emotional abuse, or neglect. Although comparability across studies was limited due to the heterogeneity in maltreatment experiences, age, and EF tasks used, overall, 94.1% (n=16) of studies showed that maltreated children had a significant impairment in one or more areas of executive ability over and above any difference in global intelligence. There was support for impairments in inhibitory control, executive working memory, and decision making, but only limited support for impairments in cognitive flexibility, planning/problem solving, or fluency. Limitations of the current evidence base are discussed and recommendations for future research are offered, concluding with an overview of the implications of findings for social, educational and clinical services.

Keywords: *maltreatment, abuse, neglect, children, executive function.*

1. Introduction

The biopsychosocial consequences of childhood maltreatment are well documented and have major societal and economic implications. In 2010, the economic burden per victim of child maltreatment to the US was estimated to be approximately \$210,000; the total burden was estimated to be up to as much as \$585 billion due to child welfare and special education costs, physical and mental health care costs, productivity losses and criminal justice costs across the lifespan (Fang, Brown, Florence, & Mercy, 2012). In the UK, the lifetime economic burden per victim was recently estimated to be £89,390 (Conti, Morris, Melnychuk & Pizzo, 2017).

Parental maltreatment encompasses any type of pathogenic care including physical, sexual and emotional abuse, physical and emotional neglect, abandonment, as well as witnessing domestic violence. Neglect is by far the most common form of child maltreatment, accounting for 75% of all child maltreatment cases in the US in 2014, whilst physical and sexual abuse accounted for 17% and 8% of cases, respectively (US Department of Health and Human Services, 2015). Similarly in England, neglect was the primary reason for children being placed on the Child Protection Register in 46% of cases (National Society for the Prevention of Cruelty to Children 2017). However, it is likely that many children are exposed to multiple types of maltreatment (Pears, Kim, & Fisher, 2008). The prevalence of maltreatment is difficult to quantify and documented cases of maltreatment are likely to represent only a fraction of the total number of children who experience pathogenic care.

Research consistently demonstrates that maltreated children have poorer long-term outcomes in terms of education (Hildyard & Wolfe, 2002), employment, and physical and mental health (Lanier, Kohl, Raghavan, & Auslander, 2015;

Springer, Sheridan, Kuo, & Carnes, 2007). Maltreatment research is increasingly being integrated with that of neuroscience and, since the postnatal brain is subject to activity-dependent shaping via the processes of synaptogenesis, synaptic pruning and myelination, it is likely that exposure to chronic maltreatment in childhood would be reflected in subsequent neuronal organisation and circuitry. The elevated stress and arousal associated with maltreatment is mediated by the hypothalamic-pituitary-adrenal system, which is itself under social regulation during early development (Tarullo & Gunnar, 2006), and in turn influences neurodevelopmental processes at the molecular and cellular level. Indeed, neuroscience is beginning to reveal the enduring anatomical and functional impact of certain maltreatment experiences (Twardosz & Lutzker, 2010). Neuroimaging studies have shown differences within and between brain regions including the prefrontal cortex (PFC), hippocampus, amygdala and corpus callosum in maltreated children (Hart & Rubia, 2012).

Neuropsychological studies have demonstrated that maltreatment can affect cognitive ability in preschool (Manly, Lynch, Oshri, Herzog, & Wortel, 2013) and school age children (Mills et al., 2011). Further, studies have shown that maltreated children have, on average, lower IQ scores than their nonmaltreated peers (Enlow, 2012; Mills et al., 2011). Maltreated children also show poorer behavioural outcomes compared with nonmaltreated peers, with higher levels of internalising and externalising behaviours, and poorer emotional and behavioural regulation (Maguire et al., 2015). Self-regulatory behaviours, such as the ability to inhibit reflexive responses and monitor performance, are essential in order to successfully manage social and cognitive demands. These higher order skills, referred to as executive functions (EF), encompass adaptive, flexible and goal-directed behaviours. As such, EF is vital for all facets of life including academic and social success as well as

everyday living (Mischel, Shoda, & Peake, 1988; Shoda, Mischel, & Peake, 1990; St ClairThompson & Gathercole, 2006). The PFC, which mediates EF, undergoes a relatively protracted development into early adulthood, and is therefore particularly susceptible to environmental influences (Kolb et al., 2012). The impact of maltreatment is likely to depend on a range of factors including the age at the time of maltreatment, the type, severity and chronicity of maltreatment, the presence of positive attachment relationships, as well as other individual and environmental factors. Certainly, there exists a proportion of children who go on to achieve positive outcomes despite a history of maltreatment, highlighting the role of resilience in developmental trajectories (Afifi & MacMillan, 2011). Estimates of the proportion of maltreated children who go on to achieve resilience vary from 1.5% to 37.6% (compared with 10% and 61.3% of nonmaltreated children, respectively), depending on how the term is operationalised (Cicchetti and Rogosch, 1997). That said there is a body of research suggesting that executive abilities may be disrupted in children exposed to maltreatment although there are inconsistencies in the findings across studies.

Notwithstanding the lack of clarity in defining EF as a construct and the differing theoretical models put forward (Baddeley & Hitch, 1974; Norman & Shallice, 1986; Zelazo, Carter, Reznick, & Frye, 1997), in empirical terms it is generally accepted that there are a number of subcomponents of EF which include: inhibitory control, executive working memory, cognitive flexibility or set-shifting, fluency, planning and problem solving. Whilst these are likely interrelated, there is evidence that they are somewhat separable constructs, particularly so for inhibition and cognitive flexibility (Friedman et al., 2008; Miyake et al., 2000).

A variety of EF assessment tools for children have been developed, the majority of which are adapted from those originally developed for adults. The development of these tools is based on their sensitivity to frontal lobe damage but, given the lack of clarity in defining EF, it is difficult to determine their construct validity. There is also a lack of consensus regarding the particular executive abilities that are tapped in certain EF tasks. Further, the ecological validity of EF tasks is questionable (Jurado & Rosselli, 2007). For example, adults with traumatic injury to the frontal lobes have been shown to perform well in lab-based EF tasks but be unable to hold down jobs and successfully perform real-life tasks, such as a shopping trip (Shallice & Burgess, 1991). Very few studies have investigated the reliability of EF tasks in children. Existing reliability data suggests moderate test-retest reliability for some tasks. It has been argued, however, that test-retest reliability estimates are inherently limited by the fact that tasks are no longer novel on re-administration, yet are designed to assess the ability to cope with novel problems (Burgess 1997; Hughes & Graham, 2002).

Notwithstanding the above limitations, there are a number of available EF test batteries with reasonable psychometric properties. For example, the Delis Kaplan Executive Function System (D-KEFS), suitable for children between 8-16 years, has moderate to good test-retest reliabilities and internal consistencies for most measures. Two other batteries have EF components: the Cambridge Automated Neuropsychological Test Battery (CANTAB; Robbins et al 1997), suitable for children aged 4-16 years, and the Developmental Neuropsychological Assessment (NEPSY; Korkman, Kirk & Kemp, 2007), suitable for children aged 3-16 years; both of these generally show moderate to good internal consistency and test-retest reliabilities. There are also a number of 'standalone' tasks available for use in

children, including the Stroop Colour-Word test (Stroop, 1935) and adaptations, card sort tasks such as the Wisconsin Card Sort Test (WCST; Heaton, 1981), and tower tasks such as the Tower of London (Shallice, 1982), which are thought to provide measures of inhibitory control, cognitive flexibility, and planning/problem solving, respectively.

There is clinical utility in assessing EF in children with neurodevelopmental disorders, where particular profiles of EF impairment have been suggested, such as in autistic spectrum disorders (Hill, 2004), attention deficit-hyperactivity disorder (Barkley, 1997), and foetal alcohol spectrum disorders (Kodituwakku, Kalberg & May, 2001). Understanding EF profiles in such disorders assists practitioners in developing targeted educational and clinical interventions. To date, there has been conflicting evidence regarding executive abilities in maltreated children and whether deficits are associated with particular types of maltreatment; while some studies have shown an association between maltreatment and EF, others have not. One narrative review looked at executive function in maltreated adolescents and, whilst impairments in inhibitory control were generally found, there were differential findings in relation to other components of EF such as planning/problem solving (KirkeSmith, Henry, & Messer, 2012), highlighting a complex pattern of difficulties. Whilst this review suggests that there may be some changes following maltreatment in adolescence, there is no clear consensus to date across childhood and adolescence.

Given the fact that maltreated individuals tend to have lower intelligence scores than their nonmaltreated counterparts (Mills et al, 2009; Perez & Widom 1994), and it is likely that EF is related to intelligence in children (Ardila, Pineda & Rosselli, 2000; Arffa, 2007), it is also unclear whether EF impairments detected in maltreated children could be more parsimoniously explained by group differences in

intelligence. A stronger case for a specific EF impairment could clearly be made if EF differences remain after controlling for IQ differences between groups, or if IQ differences are not present. Thus, this systematic review sets out to summarise and critically appraise all published and unpublished research findings regarding the association between maltreatment and EF from early childhood to adolescence, and whether EF impairments exist when differences in intelligence have been accounted for. Maltreated children are amongst the most vulnerable members of society and it is hoped that the findings will help inform social, educational and mental health services in terms of the provision of support and intervention – and where such provision would be most effectively directed. This systematic review should also help identify gaps in research and guide future research in this important area.

2. Method

2.1 Search Strategy

A systematic search of three electronic databases (PsycINFO, Embase and Medline) was conducted between January 1975 and April 2016 (final search on 25 April 2016) using the following search terms: one of the key words or word stems ‘maltreat*’ ‘neglect*’, ‘physical abuse’, ‘sexual abuse’, ‘domestic abuse’, ‘domestic violence’, ‘emotional abuse’; and any of the key word stems or phrases ‘executive function*’, ‘inhibitory control’, ‘cognitive control*’; and limited to studies of childhood and adolescence. After duplicates were removed this produced a list of 429 articles (see Figure 1). The electronic search was supplemented by hand searching a number of key journals¹ and searching the references section of retrieved articles which identified a further 15 articles. This produced a total of 444 articles, which were then filtered by title and abstract according to the inclusion and exclusion criteria by two independent screeners. A large number of the articles were excluded at this stage; all remaining articles were read in full and only a small number were rejected.

Inclusion criteria were that papers were all primary studies of children aged up to 18 years of age who had experienced maltreatment (physical abuse, sexual abuse, emotional abuse, neglect, witnessed domestic violence) for which the authors explicitly included at least one experimental measure of EF, where performance was compared with a non-maltreated comparison group of children, and IQ was either accounted for in analyses or there was not statistically significant difference in IQ between groups. Studies were excluded if the maltreated group consisted only of a

¹ Child Development, Child Neuropsychology, Child Maltreatment, Journal of Child and Adolescent Trauma, Child Abuse and Neglect, Journal of Abnormal Child Psychology, and Development and Psychopathology.

clinical sample where maltreatment was secondary to another mental health diagnosis. A decision was made not to include previously institutionalized children in this review, since these children tended to experience extreme forms of global neglect and deprivation whilst residing in institutions, quite different from forms of abuse and neglect that might occur in the family home. (van IJzendoorn et al, 2011). At this stage, authors who had published studies or reviews in the area were contacted to enquire about any relevant unpublished research, and provide additional data when needed, for inclusion in the review. Thirteen authors were emailed between October-December 2016, although this did not add any further studies for inclusion.

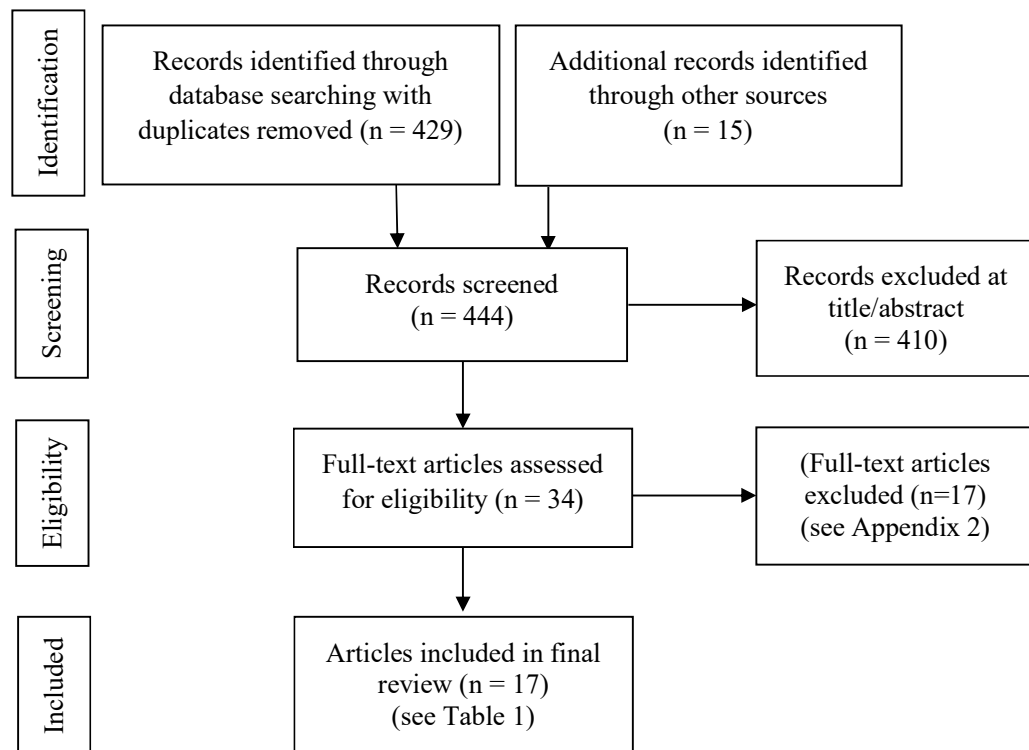


Figure 1: *Flow diagram of study selection based on Prisma guidance*

2.2 Critical appraisal of included studies

The methodological quality of studies was assessed using a checklist based on the Scottish Intercollegiate Guidelines Network methodology checklist three: cohort studies (SIGN, 2011) and Critical Appraisal Skills Programme (2017) advisory guidance, and modified to fit the aims of the review (see Appendix 3). Several studies which met the eligibility criteria had included tasks used to assess abilities other than EF. For example, some studies also included tasks assessing cognitive ability, memory, simple attention or language. As the present review aimed only to investigate executive functions, data relating to these tasks were not included.

The criteria used in this quality assessment tool addressed issues of ascertainment of maltreatment status in maltreatment group (i.e. social service records and/or self/carer report), exclusion of maltreatment in comparison group (i.e. checking of social service records and/or self/carer report), the matching of comparison group demographics or controlling for any differences, the sample size and power of studies, the reliability and validity of EF measures used, the appropriateness and quality of analyses, and quality of reporting results. Studies were also rated on the range of EF tasks employed, since using a variety of EF tasks is likely to provide a more stable and representative estimation of executive ability (Rushton, Brainerd, & Pressley, 1983). The quality of all studies was assessed by the lead author, and a sub-section (five papers) was randomly selected and also rated by another researcher. A moderate level of inter-rater agreement between reviewers was observed ($\kappa=0.63$). Discrepancies were discussed and reconciled; then all articles were rated again by the lead author. Studies were generally of adequate overall quality in terms of the review question (see Appendix 4), with scores ranging from 6-13 out of a possible 14. Just two studies used an *a priori* power calculation,

therefore the power of remaining studies was estimated based on Cohen's tables (Cohen, 1992). On this basis, only six studies were estimated to be of sufficient power.

3. Results

3.1 Description of included studies

Seventeen published and unpublished studies between and 2001 and 2016 in 18 articles met eligibility criteria for inclusion in the review; a summary of included studies is provided in Table 1. The age of participants ranged from 3-18 years. Studies were heterogeneous in terms of the maltreatment experiences of participants; two studies investigated either physical abuse alone or with witnessing domestic violence, two studies neglect, with the majority (n=12) including children with a mixed maltreatment picture.

Across all studies, there was also heterogeneity in terms of the living arrangements of children. Seven studies used a group of children looked after away from home, four of which were in foster care (Bücker et al 2012; Pears et al 2010; Weller & Fisher, 2013; Weller, Leve, Kim, Bhimji, & Fisher, 2015) and three of which were in residential care (Broomand, 2003; Guyer et al., 2006; Vasilevski & Tucker, 2016). One study included a proportion (75%) of participants in the maltreatment group in foster care (KirkeSmith, Henry, & Messer, 2014). The remaining participants were either living at home with birth parents, or living arrangements were not specified.

Table 1: *Characteristics of studies included in review*

Reference Country	Maltreatment subtype	Number	Age range	EF skill tested	EF measure	Main findings	QR
Augusti and Melinder 2013 Norway	PA and DV: 23.8% witnessed DV: 61.9% NE: 14.3%	MTX:21 CG: 22	8-12 years	Inhibitory control Cognitive flexibility Executive working memory	DKEFs Color- Word interference test I/E Set Shift task SWM task	Maltreated children performed more poorly on an executive working memory task (medium effect size). No significant difference in inhibitory control and cognitive flexibility between MTX and non- MTX participants.	10
Broomand 2003 USA	PA (100%)	MTX:30 CG:30	8-12 years	Cognitive flexibility Non-verbal fluency Verbal fluency	WCST; TMT-B Design Fluency COWAT	PA children performed less well on fluency. There were mixed results for cognitive flexibility: PA children performed less well on TMT-B (small effect size) but not WCST.	6
Bücker et al 2012 Brazil	PA: 43.3% SA: 20% NE: 86% Mixed: 50%	MTX:30 CG:30	5-12 years	Inhibitory control Cognitive flexibility Executive working memory	CPT WCST Digit Span backwards	MTX children showed poorer inhibitory control and executive working memory than non- MTX children (medium effect size), but there was no significant difference in cognitive flexibility.	10
Cipriano- Essel et al 2013 USA	PA: 28.1% EA: 37.5% NE: 87.5% Mixed: 40.6%	MTX:64 CG:54	3-5 years	Inhibitory control (composite score)	Stroop shapes Stroop day/night	MTX children showed poorer inhibitory control than non- MTX children (medium effect size); however this difference was non-significant when child age, maternal education and income levels, and IQ were controlled for.	13

DeBellis et al 2009 USA	NE	MTX&PTSD: 22 MTX:39 CG: 45	3-12 years	<u>EF composite</u> (attention, planning/problem solving, self-monitoring) Planning/problem solving	NEPSY Tower; NEPSY Auditory attention; Visual attention; CPT-II NEPSY Tower	NE children showed poorer EF performance (large effect size). NE children with PTSD performed significantly worse than non-MTX children, but no difference was found between NE children without PTSD and non-MTX children. Impairment negatively correlated to PTSD symptoms and severity.	12
De Prince et al 2009 USA	PA and/or DV: 86.4% SA: 13.6%	MTX:44 Non-familial trauma group:38 CG:28	Mean: 10 years (range not spec.)	<u>EF composite</u> Inhibitory control	GDS commission errors Stroop test; CPT-II	Maltreated children performed more poorly than children exposed to non-familial trauma or nonmaltreated children on an EF composite (medium effect size). PTSD symptom severity did not explain the unique variance in EF scores.	11
Guyer et al 2006 USA	MTX type not specified	MTX:38 CG: 21	8-14 years	Decision making	Wheel of fortune task	Non-MTX children took longer to select higher risk options, but there was no overall difference in response time in MTX children between high and low risk options, whereas MTX children responded more quickly as the chance of winning increased (medium effect size).	8
Harris 2011 USA	PA DV	MTX:38 CG:42	9-15 years	Inhibitory control Cognitive flexibility Planning/Problem solving	Stroop color/word WCST ToL; Balance scale task	No overall difference in EF performance between MTX and non-MTX participants; however, MTX	11

						males did perform less well than non-MTX males.	
Kirke-Smith et al 2014; 2015 UK	PA: 30% SA: 32.5% EA: 32.5% NE: 55% witnessed DV: 22.5%	MTX:40 CG:40	11-18 years	Cognitive flexibility Fluency Inhibitory control Executive working memory	VF and DF switching VF and DF Inhibition task Listen. recall test Odd-One-Out task	MTX adolescents performed more poorly on verbal and nonverbal tests of executive working memory and fluency (small effect sizes), and inhibitory control (large effect size). No differences were found in cognitive flexibility.	11
Mezzacappa et al 2001 USA	PA: 40% SA: 8% Both: 52%	MTX:25 52 CG:48 Males only	6-16 years	Inhibitory control	Stop signal task; Passive avoidance learning task	Both groups of children in therapeutic schools performed more poorly on inhibitory control tasks compared with public school children. MTX children did show diminished improvement with age in the capacity to avoid responses associated with adverse consequences compared with other two groups (medium effect size).	10
Mothes et al 2015 Brazil	Single type group: PA: 8.3% SA: 4.2% EA: 37.5% NE: 50%	Single MTX:24 Multi MTX:19 CG:40	12-18 years	Inhibitory control Cognitive flexibility Verbal fluency	Hayling B TMT FAS oral word assoc. test	Adolescents who experienced a single type of MTX performed more poorly on cognitive flexibility and visual processing speed tasks than adolescents exposed to multiple types of MTX and non-MTX adolescents. Insufficient information to calculate effect sizes.	10
Nadeau and Nolin 2013	NE	MTX:30 CG:30	8-12 years	<u>EF composite:</u> Inhibitory control; cognitive flexibility		Neglected children showed poorer performance on an EF composite (medium effect size). Post hoc analyses	10

Canada				Inhibitory control	Stroop Color/ Word (inhibition); NEPSY Response Set	showed specific impairment in cognitive flexibility (medium effect size).	
				Cognitive flexibility	Colour/Word (switching)		
Pears et al 2010 USA	PA: 36% SA: 27% EA: 89% NE: 84%	MTX:85 CG:56	5-6 years	Inhibitory control composite	Stroop day/night; NEPSY statue; FC report	Maltreated foster children showed poorer inhibitory control than non- MTX children (medium effect size). Inhibitory control fully mediated the association of MTX with academic competence, and partially with social- emotional competence.	12
				Visual attention	NEPSY visual attention		
Skowron et al 2014 USA	PA: 28.2% NE: 71.8% EA: not specified Mixed: 46.2%	MTX:78 CG:83	3-5 years	Inhibitory control	Stroop test (shapes; day/night composite)	MTX children showed poorer inhibitory control than nonmaltreated children (medium effect size).	13
Vasilevski & Tucker 2016 Australia	MTX type not specified	MTX:39 CG:43	12-16 years	Inhibitory control	Stroop color/word	MTX children showed poorer performance on inhibitory control (medium effect size) but not on cognitive flexibility or verbal fluency.	10
				Cognitive flexibility Verbal fluency	TMT-B COWAT; CAFT	They did, however, take longer to complete the TMT-B task (medium effect size).	
Weller & Fisher 2013 USA	MTX type not specified	MTX:25 CG: 112	8-11 years	Decision making	Cups task	MTX children showed decision making impairments for potential gains and potential losses. MTX children took	8

						excessive risks and were insensitive to changes in expected value.	
Weller et al 2015 USA	PA: 56% SA: 67% NE: 78% Mixed: 72%	MTX:92 CG:80 Females only	15-17 years	Decision making	Cups task	MTX adolescents showed decision making impairments involving potential gains, with greater overall risk taking. Frequency of NE was related to greater decision making difficulties.	10

Abbreviations: CG control group; MTX: maltreatment group; NE: neglect; EA: emotional abuse; PA: physical abuse; SA: sexual abuse; FC: foster care. CAFT: Controlled Animal Fluency Test; COWAT: Controlled word association test; CPT: Conners' Continuous Performance Test; DF: Design Fluency; D-KEFS: Delis-Kaplan Executive Function System; GDS: Gordon Diagnostic System; IED: Intra-Extra Dimensional Set Shift test; NEPSY: A Developmental Neuropsychological Assessment; SOC: Stockings of Cambridge; SWM: spatial working memory; TMT: Trail Making Test; ToL: Tower of London test; VF: verbal fluency; WCST: Wisconsin card sort task. QR: quality criterion rating. ES: effect size.

Due to the heterogeneity of studies, particularly in terms of maltreatment experiences, ages of participants, the different EF domains investigated and executive tasks used, meta-analytic synthesis of studies would be potentially misleading (Deeks, Higgins & Altman, 2011); findings are instead evaluated using narrative synthesis. Since research demonstrates only modest inter-correlation between different dimensions of EF (Miyake et al., 2000) with varying underlying neural substrates (Wager & Smith, 2003), results are first reported for studies including an EF composite score, then grouped into six sections according to the main executive ability under assessment: inhibitory control, executive working memory, cognitive flexibility/switching, planning/problem solving, fluency, and decision making.

3.2 Executive function composite

Four studies reported an EF composite score, in addition to domain-specific scores (DeBellis, Hooper, Spratt, & Woolley, 2009; DePrince, Weinzierl, & Combs, 2009; Harris, 2011; Nadeau & Nolin, 2013). Overall, all but one of the studies showed that maltreated children performed more poorly than nonmaltreated children on EF tasks. Two studies showed that children who had experienced prior neglect performed more poorly on an overall EF composite compared with a nonmaltreated comparison group, with medium effect sizes (DeBellis et al 2009; Nadeau & Nolin, 2013). In another study, the poorer performance on EF tasks remained after controlling for trauma-related symptoms, with a medium effect size (DePrince et al., 2009). Where separate results were included for each EF dimension, these are discussed in the following relevant sections.

3.3 Inhibitory control

Twelve studies included a measure of inhibitory control. Overall, 75% (n=9) of studies reported some impairment in maltreated children, eight of which found that maltreated children performed significantly more poorly on inhibitory control tasks than nonmaltreated children, with small to large effect sizes. One study showed that maltreated males performed less well than nonmaltreated males, whereas such a difference was not found in performance between groups in females (Harris, 2011). In one study, however, impaired performance was no longer significant after collectively controlling for child age and IQ, as well as maternal education and income (Cipriano-Essel, Skowron, Stifter, & Teti, 2013), however the individual contribution of IQ is not known. Of note, in all four of the studies which did not find a statistically significant difference between groups, maltreated children did show a lower mean performance (Augusti & Melinder, 2013; Harris, 2011; Mothes et al, 2015; Nadeau & Nolin, 2013).

3.4 Cognitive flexibility

A total of eight studies included a measure of cognitive flexibility, with mixed results. Overall, half of studies found a significant difference in cognitive flexibility in maltreated children, with maltreated children committing more perseverative errors or taking longer to complete relevant tasks (Broomand 2003; Mothes et al 2015; Nadeau & Nolin, 2013; Vasilevski & Tucker, 2016). Whilst Broomand (2003) showed no difference in perseverative errors in the WCST in physically abused children, these children did produce more errors and take longer to complete the switching condition of the TMT than a nonmaltreated comparison group (Broomand, 2003).

3.5 Executive working memory

Three studies included a measure of executive working memory (tasks which required both the storage and manipulation of information) covering the ages from middle childhood to adolescence. All three studies, each using different tasks, showed that maltreated children performed significantly more poorly than a nonmaltreated comparison group of children with small to medium effect sizes (Augusti & Melinder, 2013; Bückner et al, 2012; KirkeSmith et al., 2014). Further, Kirke-Smith et al (2014) showed that this significant difference remained after controlling for emotional and behavioural difficulties (KirkeSmith et al., 2014). In a study that used the spatial working memory task, maltreated children used a less efficient strategy to complete the task and made more errors; only one study did not find a significant difference in total errors, although a significant difference was found for the strategy employed (Augusti & Melinder, 2013).

3.6 Planning/problem solving

Only two studies included a measure of planning/problem solving. DeBellis et al (2009) showed that a group of neglected children performed more poorly on a planning/problem solving task than a nonmaltreated comparison group of children, with a medium effect size, which remained significant after controlling for IQ. In another study of physically abused 9-15 year old children, although no group difference in overall performance on the Tower of London planning/problem solving task was found, younger maltreated children (9-12 years of age) did take longer to complete items when they had watched a negative emotion-evoking clip than younger, nonmaltreated children (Harris, 2011).

3.7 Fluency

Four studies included a measure of verbal fluency, measuring phonological and semantic fluency. Only one study showed robustly that maltreated children showed poorer verbal fluency than a nonmaltreated comparison group. In this study, a group of adolescents who had experienced physical, emotional and sexual abuse, as well as neglect and witnessing domestic violence, often in combination, showed poorer verbal fluency than a comparison group of non-maltreated children when IQ was controlled for. This small effect remained even after controlling for emotional and behavioural difficulties (KirkeSmith et al., 2014). In one study, although a group of physically abused children showed poorer verbal fluency than nonmaltreated children, the effect size was small and additional post hoc analyses demonstrated that maltreatment history only accounted for a very small percentage of the variability, with a greater proportion accounted for by ethnicity alone (Broomand, 2003). Similarly, no differences were found in maltreated adolescents (Mothes et al., 2015; Vasilevski & Tucker, 2016).

Two studies included a measure of non-verbal fluency. Kirke-Smith et al. (2014) showed that maltreated adolescents performed more poorly on design fluency tasks than non-maltreated adolescents when IQ was controlled for; again this small effect remained after controlling for emotional and behavioural difficulties (KirkeSmith et al., 2014). Similarly, Broomand (2003) found that physically abused children performed more poorly on design fluency than nonmaltreated children when IQ was controlled for (Broomand, 2003).

3.8 Decision making

Three studies used a measure of decision making using monetary paradigms. Weller and colleagues compared how maltreated children (Weller & Fisher, 2013) and adolescent females in foster care (Weller et al., 2015) approached decision making in terms of risk propensity and expected-value sensitivity using the cups task paradigm. In both studies, maltreated children were more likely to take risks to avoid losses and were less sensitive to the expected value of choice options. Further, adolescent females who had experienced more chronic neglect showed higher levels of risk taking than those with fewer instances of neglect, and maltreated adolescents who took part in a foster care intervention designed to prevent risk-taking behaviours when they were 11 years of age performed no differently to their nonmaltreated peers at 15-17 years of age (Weller et al., 2015). Guyer et al (2006) compared decision making in maltreated and nonmaltreated 8-14 year olds using the wheel of fortune task. They found that, whilst nonmaltreated children took longer to select higher risk options, there was no difference in response time in maltreated children between high and low risk options. All three studies used comparison groups that were well matched in terms of socioeconomic status, and decision making deficits remained significant even when controlling for differences in symptoms of depression, anxiety, post-traumatic stress, although maltreated children who met diagnostic criteria for depression tended to favour safe over risky choices when compared with maltreated children who did not meet diagnostic criteria for depression (Guyer et al., 2006).

4. Discussion

The present systematic review into EF in children and adolescents with a history of maltreatment identified 17 studies that compared a maltreated group to a nonmaltreated comparison group, and either compared groups with no difference in IQ, or accounted for IQ differences in analyses. Overall, all but one of the studies reported that maltreated children had a significant impairment in one or more areas of executive ability; however, there was considerable variability in the specific deficits reported. When executive ability was broken down into subdomains, there was support for impairments in inhibitory control, executive working memory, and decision making; in contrast the results showed more limited support for impairments in cognitive flexibility, verbal and non-verbal fluency, and planning/problem solving. A decision was made not to synthesise results by maltreatment type, since most maltreated children experience multiple type of maltreatment (Lau et al., 2005; Pears & Fisher, 2005) and the majority of studies in this review included children who had experienced multiple types.

There was evidence for an impairment in inhibitory control across a broad age range, with the majority of studies reporting that maltreated children performed more poorly on inhibitory control tasks than nonmaltreated children. These results are also supported by the one study excluded from this review (because IQ was not assessed) in which maltreated children performed more poorly in inhibitory control tasks (Cowell et al, 2015).

There was also strong support for impaired central executive working memory with all three studies showing that maltreated children performed significantly more poorly than nonmaltreated children. In studies that used the spatial

working memory task, maltreated children used a less efficient strategy to complete the task and made more errors. Of note, inhibitory control and executive working memory develop earlier than other executive abilities and may be more susceptible to early pathogenic care (Jurado & Rosselli, 2007).

There were mixed findings regarding cognitive flexibility although in studies that did find group differences, maltreated children tended to make more perseverative errors or take longer to complete tasks. There was very limited evidence for impaired fluency in maltreated children, with only one study showing poorer verbal and non-verbal fluency (KirkeSmith et al., 2014). Verbal fluency is thought to develop later than other executive function abilities (Jurado & Rosselli, 2007) therefore one possible reason for the lack of difference found between maltreated and nonmaltreated children is that maltreatment exposure occurred prior to the developmental maturation of verbal fluency. This review highlights that more research with a full range of EF domain tasks is needed, as only two studies assessing planning/problem solving, only three assessing executive working memory and decision making, and only four assessing fluency, met inclusion criteria.

A distinction has been made between executive processes that operate in motivationally and emotionally significant situations, termed ‘hot EF’, and those that operate in abstract, decontextualised situations, termed ‘cool EF’ (Zelazo & Müller, 2002). Only three studies in this review assessed ‘hot’ EFs using decision-making paradigms (Guyer et al., 2006; Weller & Fisher, 2013; Weller et al., 2015).

Compared with other developmental periods, adolescence is associated with an increase in risky behaviours, such as substance use, delinquency, and health-risking sexual behaviour. Maltreated adolescents are particularly susceptible to

engage in risky behaviours (Aarons, Brown, Hough, Garland & Wood, 2001; Cobb-Clark, Ryan & Sartbayeva, 2012; Gramowski et al, 2009) but few studies have investigated the decision making processes underlying such vulnerability. One study has showed that maltreated children showed higher amygdala activation in an emotional face go/no-go task suggesting that emotional cues might impede inhibitory performance (Tottenham, 2011). In this review, all three studies that assessed decision making using monetary paradigms found differences between maltreated and nonmaltreated children. They were more likely to take risks to avoid losses, were less sensitive to the expected value of choice option, and showed no difference in time taken to select high versus low risk options (Guyer et al., 2006; Weller & Fisher, 2013; Weller et al., 2015). Further, adolescent females who had experienced more chronic neglect showed higher levels of risk-taking than those with fewer instances of neglect (Weller et al., 2015). Taken together, these results suggest that maltreated children may have a reduced sensitivity to reward and are more impulsive at making decisions, which may reflect poorer inhibitory control (Weller et al., 2015). Poor decision making could have a significant and detrimental impact on maltreated adolescents, for example in the context of interpersonal conflict and decision making in relation to risk. Harris (2011) found that 9-12 year old maltreated children did take longer to complete items when they had watched a negative emotion-evoking clip than age-matched nonmaltreated children (Harris, 2011). Future research should consider the use of more comprehensive assessments that include measures of hot EF.

Across all studies, there are a number of possible reasons why some studies did not detect differences in executive domain performance. There was variability in

methodological quality of the studies, a major weakness being the low sample size of the majority of studies. That said, it is important to note that null findings on behavioural measures of EF do not necessarily indicate a lack of difference in executive ability between maltreated and nonmaltreated children. Indeed, in studies comparing brain activity during inhibitory control tasks using fMRI in children (Bruce et al., 2013) and adolescents (Müller et al. 2010), although no difference in accuracy was found between the two groups, maltreated children showed a differing pattern of brain activation to nonmaltreated children.

Although the findings of this review suggest that EF impairment is still indicated after controlling for intelligence, it is important to consider whether executive ability could be secondary to some other factor(s), such as symptomatology, or socio economic status (SES). In the majority of studies, SES was well accounted for in analyses suggesting that this factor is unlikely to be a major confounding variable. A number of studies that investigated the impact of symptomatology on EF performance did not find an association between EF performance and symptomatology, which was higher in maltreated children (Augusti & Melinder, 2013; Bucker et al., 2012; DePrince et al., 2009). However, DeBellis et al (2009) compared maltreated children with and without PTSD symptoms and showed that those who met diagnostic criteria performed significantly worse on executive tasks than maltreated children with fewer symptoms (DeBellis et al., 2009). Another study comparing adolescents with and without maltreatment histories showed that some areas of EF were affected by the level of emotional and behavioural difficulties, which were unsurprisingly more prevalent in maltreated adolescents (KirkeSmith et al., 2014).

Complicating factors in synthesising studies are the heterogeneity among maltreated experiences of children, in terms of severity, onset, frequency and chronicity (Manly, Kim, Rogosch, & Cicchetti, 2001), which could each differentially influence EF, and the variability in EF tasks that are selected, likely to have subtle differences in cognitive demand. Indeed, 13 different tasks were used to assess inhibitory control, five different tasks were used to assess cognitive flexibility, three different tasks were used to assess planning/problem solving, and six different tasks were used to assess fluency in this review.

One study provided evidence that high quality caregiving following maltreatment can lessen its detrimental impact on executive ability. Following a foster care intervention, maltreated children were shown to have decision making (Weller et al., 2015). Future studies should collect more information about the quality and length of care received following experience of maltreatment as this is likely to impact on developmental trajectories and may inform future interventions for maltreated children.

4.1 Limitations of the review

Whilst a strength of this review is that it examined a range of executive functions and accounted for any group IQ differences, with a range of ages of children and types of maltreatment experiences, several limitations are implicit. Many of the studies were restricted to relatively small sample sizes, lowering the probability of finding an association between maltreatment and EF. The wide range of ages of children in many included studies meant that it was not possible to separate results into particular age groups. A meta-analysis of the results was not

undertaken, which would have enabled more accurate comparisons to be drawn across the studies. However, the heterogeneity between studies, particularly in terms of maltreatment experiences, the different EF domains investigated and executive tasks used, indicated that calculation of an overall average value for the effect of maltreatment on EF ability may have been misleading. Whilst there are inherent barriers to accessing maltreated children, future studies should give careful consideration to sample size and task selection if firm conclusions are to be drawn. Larger sample sizes would also permit more investigation into possible moderating factors, such as general cognitive ability, symptomatology and gender.

One criticism of EF tasks is that they possess limited ecological validity. This could be improved by administering a range of executive tasks rather than relying on one or two (Burgess, Alderman, Evans, Emslie, & Wilson, 1998; Rushton et al., 1983). Further, the use of carer- and teacher-report measures such as the Behavior Rating scale for Executive Function (Gioia, Isquith, Guy & Kenworthy, 2000), in addition to lab-based tasks, may increase ecological validity and also provide support for the implicit assumption that poorer performance on EF test measures would be reflected in everyday life.

A further limitation when considering EF domains in isolation relates to the EF tasks themselves, which generally tap more than one executive process. The issue of task impurity limits the argument that maltreated children have impairments with specific aspects of EF, and not with others, as it is unlikely that tasks only tap one particular EF domain, rather a range to differing degrees. Indeed, real-life executive tasks are likely to stress a range of cognitive processes (Burgess et al., 1998).

Notwithstanding these limitations, we would argue that the immense and enduring consequences of child maltreatment to both the individual and society at large necessitate attempts to synthesise existing evidence in order to highlight emerging patterns. Indeed, this is the first systematic review to bring together research on the impact of a range of maltreatment experiences on children's EF ability and determine whether maltreated children show deficits over and above IQ differences.

The conclusions of this review are consistent with functional imaging studies which show decreased PFC activation in maltreated children (McCrory, De Brito, & Viding, 2010), and carer and teacher reports of executive function difficulties in maltreated children and adolescents (Lansdown, Burnell, & Allen, 2007; Merz et al., 2013). In some settings where children are identified as having experienced maltreatment, executive ability is routinely assessed (Lansdown et al., 2007). If this were to become routine practice more widely, maltreated children could then benefit from more timely and individualised interventions to target any deficits identified. Computer training, non-computer based games, aerobic exercise, martial arts, yoga, mindfulness, and school-based curricula have all been shown to enhance EF and, importantly, those with poorest EF at the outset tend to gain the most (Diamond & Lee, 2011). Targeting EF with evidence-based interventions, in addition to addressing other vulnerabilities, could thus significantly improve social and educational outcomes for this vulnerable, disadvantaged group of children, although the impact of interventions needs to be replicated in more robust studies. Routine assessment could also reduce the frustrations and negative attributions that might arise when caring for a child with a maltreatment history who struggles with

executive tasks, such as shifting an attribution that the child “*won’t do*” to the child “*can’t do*” (Lansdown et al., 2007).

4.2 Conclusions

Overall, 94.1% (n=16) of studies showed that maltreated children had a significant impairment in one or more areas of executive ability, particularly inhibitory control, executive working memory and decision making, with mixed support for impairments in cognitive flexibility, planning/problem solving, and fluency. These differences occurred over and above any IQ differences suggesting that they do not simply reflect a pervasive impairment in cognitive ability.

There was variability in methodological quality of the studies, a significant weakness being the low sample size in many studies. There was also variability in the specific EF domains affected which, notwithstanding the contribution of individual differences, could reflect the differing assessment tasks utilised and the variability in maltreatment experiences of children. These factors impose significant barriers to the integration of research in this area. However, given the relatively high prevalence rates of documented childhood maltreatment - likely to be underestimations of its true prevalence – further research in this area is warranted, but the challenge for future research will be to design large and robust enough studies to permit firmer conclusions to be drawn. In terms of improving outcomes for maltreated children, however, an individual differences approach may have greater utility.

5. References

- Aarons, G.A., Brown, S.A., Hough, R.L., Garland, A.F. & Wood, P.A. (2001) Prevalence of adolescent substance use disorders across five sectors of care. *Journal American Academy Child Adolescent Psychiatry*, 40(4), 419-26. DOI: 10.1097/00004583-200104000-00010
- Afifi, T. O., & MacMillan, H. L. (2011). Resilience following child maltreatment: A review of protective factors. *Canadian Journal of Psychiatry*, 56(5), 266-272.
- Ardila, A., Pineda, D. & Rossello, M. (2000) Correlation between intelligence test scores and executive function measures. *Arch Clin Neuropsychol* 15(1), 31-36.
- Arffa, S. (2007) The relationship of intelligence to executive function and non-executive function measures in a sample of average, above average, and gifted youth. *Arch Clin Neuropsychol.*,22(8), 969-78. DOI: 10.1016/j.acn.2007.08.001
- Augusti, E. M., & Melinder, A. (2013). Maltreatment is associated with specific impairments in executive functions: A pilot study. *Journal of Traumatic Stress*, 26(6), 780-783.
- Baddeley, A. D., & Hitch, G. (1974). Working memory. *Psychology of Learning and Motivation*, 8, 47-89.
- Barkley, R.A. (1997). Behavioural inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin*, 121, 65-94.

- Broomand, C. E. (2003). The effects of physical abuse on the development of executive functions in children (Ph.D.). Available from ProQuest Dissertations & Theses Global. (276595233).
- Bruce, J., Fisher, P. A., Graham, A. M., Moore, W. E., Peake, S. J., & Mannering, A. M. (2013). Patterns of brain activation in foster children and nonmaltreated children during an inhibitory control task. *Development and Psychopathology*, 25(4 PART 1), 931-941.
- Bucker, J., Kapezinski, F., Post, R., Cereser, K. M., Szobot, C., Yatham, L. N., Kauer-Sant'Anna, M. (2012). Cognitive impairment in school-aged children with early trauma. *Comprehensive Psychiatry*, 53(6), 758-764.
- Burgess, P. (1997) Theory and methodology in executive function research. In P. Rabbitt (Ed.) *Methodology of frontal executive function*, p. 81-116. Hove, East Sussex: Psychology Press.
- Burgess, P. W., Alderman, N., Evans, J., Emslie, H., & Wilson, B. A. (1998). The ecological validity of tests of executive function. *Journal of the International Neuropsychological Society*, 4(6), 547-558.
doi:<http://dx.doi.org/10.1017/S1355617798466037>
- Cicchetti, D. & Rogosch, F.A. (1997). The role of self-organization in the promotion of resilience in maltreated children. *Development and Psychopathology*, 9, 797-815.
- Cipriano-Essel, E., Skowron, E., A., Stifter, C., A., & Teti, D., M. (2013). Heterogeneity in maltreated and non-maltreated preschool children's inhibitory

control: The interplay between parenting quality and child temperament. *Infant and Child Development*, 22(5), 501-522. doi:<http://dx.doi.org/10.1002/icd.1801>

Cobb-Clark, D. A., Ryan, C. and Sartbayeva, A. (2012) Taking Chances: The Effect that Growing Up on Welfare Has on the Risky Behavior of Young People, *The Scandinavian Journal of Economics*, 114, 729–755. doi:10.1111/j.1467-9442.2012.01704.x

Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159. doi:<http://dx.doi.org/10.1037/0033-2909.112.1.155>

Conti, G., Morris, S., Melnychuk, M. & Pizzo, E. (2017) [online] The economic costs of child maltreatment in the UK. London: NSPCC. <https://www.nspcc.org.uk/globalassets/documents/research-reports/economic-cost-child-maltreatment-united-kingdom-preliminary-study.pdf>

Cowell, R. A., Cicchetti, D., Rogosch, F. A., & Toth, S. L. (2015). Childhood maltreatment and its effect on neurocognitive functioning: Timing and chronicity matter. *Development and Psychopathology*, 27(2), 521-533. doi:<http://dx.doi.org/10.1017/S0954579415000139>

Critical Appraisal Skills Programme (2017). CASP (Systematic Review Checklist. [online] Available at: <http://www.casp-uk.net>. Accessed: 11 May 2015.

DeBellis, M. D., Hooper, S. R., Spratt, E. G., & Woolley, D. P. (2009). Neuropsychological findings in childhood neglect and their relationships to pediatric PTSD. *Journal of the International Neuropsychological Society*, 15(6), 868-878.

Deeks, J.J., Higgins, J.P.T., Altman, D.G. (editors). Chapter 9: Analysing data and undertaking meta-analyses. In: Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 (updated March 2011). The Cochrane Collaboration, 2011. Available from www.handbook.cochrane.org

Delis, D.C., Kaplan, E., & Kramer, J.H. (2001). Delis-Kaplan Executive Function System, Technical Manual (D-KEFS). San Antonio: The Psychological Corporation.

DePrince, A. P., Weinzierl, K. M., & Combs, M. D. (2009). Executive function performance and trauma exposure in a community sample of children. *Child Abuse and Neglect*, 33(6), 353-361.

Diamond, A., & Lee, K. (2011). Interventions shown to aid executive function development in children 4 to 12 years old. *Science*, 333(6045), 959-964.
doi:<http://dx.doi.org/10.1126/science.1204529>

Enlow, M. (2012). Interpersonal trauma exposure and cognitive development in children to age 8 years: A longitudinal study. *Journal of Epidemiology and Community Health*, 66(11), 1005-1010.

Fang, X., Brown, D. S., Florence, C. S., & Mercy, J. A. (2012). The economic burden of child maltreatment in the united states and implications for prevention. Netherland: Elsevier Science;. doi:10.1016/j.chiabu.2011.10.006

Friedman, N. P., Miyake, A., Young, S. E., DeFries, J. C., Corley, R. P., & Hewitt, J. K. (2008). Individual differences in executive functions are almost entirely genetic in

origin. [Individual differences in executive functions are almost entirely genetic in origin.] *Journal of Experimental Psychology: General*, 137(2), 201.

Gioia, G.A., Isquith, P.K., Guy, S. & Kenworthy, L. (2000) Behavior Rating Inventory of Executive Functions. Lutz, FL: Psychological Assessment Resources.

Gioia, G.A., Isquith, P.K. (2004) Ecological assessment of executive function in traumatic brain injury. *Dev Neuropsychol.*, 25, 135–158.

Gramowski, B., Kools, S., Paul, S., Boyer, Ch. B., Monasterio, E., Robbins, N. (2009). Health risk behavior of youth in foster care. *Journal of child and adolescent psychiatric nursing*, 22 (2), 77-85. doi: 10.1111/j.1744-6171.2009.00176.x

Guyer, A., Kaufman, J., Hodgdon, H., Masten, C., Jazbec, S., Pine, D., & Ernst, M. (2006). Behavioral alterations in reward system function: The role of childhood maltreatment and psychopathology. *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(9), 1059-1067.

Harris, L. S. (2011). Influence of maltreatment on executive functions that underlie problem solving. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 72(1-B), 578.

Hart, H., & Rubia, K. (2012). Neuroimaging of child abuse: A critical review. *Frontiers in Human Neuroscience*, 6, Art 52-54.
doi:<http://dx.doi.org/10.3389/fnhum.2012.00052>

Heaton, R.K. (1981) Wisconsin card sorting test. Odessa, FL: Psychological Assessment Resources Inc.

Hildyard, K. L., & Wolfe, D. A. (2002). Child neglect: Developmental issues and outcomes. *Child Abuse & Neglect*, 26(6-7), 679-695.

doi:<http://dx.doi.org/10.1016/S0145-2134%2802%2900341-1>

Hill, E.L. (2004). Evaluating the theory of executive dysfunction in autism. *Developmental Review*, 24, 189-233.

Hughes, C. & Graham, A. (2002) Measuring executive functions in childhood: Problems and Solutions. *Child and Adolescent Mental Health*, 7, 131-142.

Jurado, M. B., & Rosselli, M. (2007). The elusive nature of executive functions: A review of our current understanding. *Neuropsychology Review*, 17(3), 213-233.

doi:<http://dx.doi.org/10.1007/s11065-007-9040-z>

KirkeSmith, M., Henry, L., & Messer, D. (2014). Executive functioning: Developmental consequences on adolescents with histories of maltreatment. *British Journal of Developmental Psychology*, 32(3), 305-319.

KirkeSmith, M., Henry, L., & Messer, D. (2012). Childhood maltreatment and executive functioning during adolescence. *Adolescent Psychiatry*, 2(3), 211-220.

doi:<http://dx.doi.org/10.2174/2210676611202030211>

Kolb, B., Mychasiuk, R., Muhammad, A., Li, Y., Frost, D. O., & Gibb, R. (2012). Experience and the developing prefrontal cortex. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, 109(2), 17186-17193.

doi:<http://dx.doi.org/10.1073/pnas.1121251109>

- Kodituwakku, P.W., Kalberg, W. & May, P.A. (2001) The Effects of Prenatal Alcohol Exposure on Executive Functioning. *Alcohol Research and Health*, 25(3), 192-198.
- Korkman, M., Kirk, U. & Kemp, S. (2007) *A Developmental Neuropsychological Assessment (Second Edition)*. San Antonio, TX: Harcourt Assessment.
- Lanier, P., Kohl, P. L., Raghavan, R., & Auslander, W. (2015). A preliminary examination of child well-being of physically abused and neglected children compared to a normative pediatric population. *Child Maltreatment*, 20(1), 72-79. doi: <http://dx.doi.org/10.1177/1077559514557517>
- Lansdown, R., Burnell, A., & Allen, M. (2007). Is it that they won't do it, or is it that they can't? Executive functioning and children who have been fostered and adopted. *Adoption and Fostering*, 31(2), 44-53.
- Lau, A. S., Leeb, R. T., English, D., Graham, J. C., Briggs, E. C., Brody, K. E., & Marshall, J. M. (2005). What's in a name? A comparison of methods for classifying predominant type of maltreatment. *Child Abuse & Neglect*, 29(5), 533-551.
- Maguire, S. A., Williams, B., Naughton, A. M., Cowley, L. E., Tempest, V., Mann, M. K., Kemp, A. M. (2015). *A systematic review of the emotional, behavioural and cognitive features exhibited by school-aged children experiencing neglect or emotional abuse*. United Kingdom: Wiley-Blackwell Publishing Ltd.
doi:10.1111/cch.12227

Manly, J. T., Kim, J. E., Rogosch, F. A., & Cicchetti, D. (2001). Dimensions of child maltreatment and children's adjustment: Contributions of developmental timing and subtype. *Development and Psychopathology*, 13(4), 759-782.

Manly, J. T., Lynch, M., Oshri, A., Herzog, M., & Wortel, S. N. (2013). The impact of neglect on initial adaptation to school. *Child Maltreatment*, 18(3), 155-170.
doi:<http://dx.doi.org/10.1177/1077559513496144>

McCrory, E., De Brito, S. A., & Viding, E. (2010). Research review: The neurobiology and genetics of maltreatment and adversity. *Journal of Child Psychology and Psychiatry*, 51(10), 1079-1095. doi:<http://dx.doi.org/10.1111/j.1469-7610.2010.02271.x>

McGloin, J. M., & Widom, C. S. (2001). Resilience among abused and neglected children grown up. *Development and Psychopathology*, 13(04), 1021-1038.

Merz, E. C., McCall, R. B., & Groza, V. (2013). Parent-reported executive functioning in postinstitutionalized children: A follow-up study. *Journal of Clinical Child and Adolescent Psychology*, 42(5), 726-733.
doi:<http://dx.doi.org/10.1080/15374416.2013.764826>

Mezzacappa, E. (2004). Alerting, orienting, and executive attention: Developmental properties and sociodemographic correlates in an epidemiological sample of young, urban children. *Child Development*, 75(5), 1373-1386. doi:10.1111/j.1467-8624.2004.00746.x

Mills, R., Alati, R., O'Callaghan, M., Najman, J. M., Williams, G. M., Bor, W., & Strathearn, L. (2011). Child abuse and neglect and cognitive function at 14 years of

age: Findings from a birth cohort. *Pediatrics*. 127(1):4-10. doi:

<http://dx.doi.org/10.1542/peds.2009-3479>

Mischel, W., Shoda, Y., & Peake, P. K. (1988). The nature of adolescent competencies predicted by preschool delay of gratification. *Journal of Personality and Social Psychology*, 54(4), 687-696. doi:<http://dx.doi.org/10.1037/0022-3514.54.4.687>

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex “Frontal lobe” tasks: A latent variable analysis. *Cognitive Psychology*, 41(1), 49-100. doi:<http://dx.doi.org/10.1006/cogp.1999.0734>

Mothes, L., Kristensen, C. H., Grassi Oliveira, R., Fonseca, R. P., de Lima Argimon, I. I., & Irigaray, T. Q. (2015). Childhood maltreatment and executive functions in adolescents. *Child and Adolescent Mental Health*, 20(1), 56-62.

Mueller, S. C., Maheu, F. S., Dozier, M., Peloso, E., Mandell, D., Leibenluft, E., & Ernst, M. (2010). Early-life stress is associated with impairment in cognitive control in adolescence: An fMRI study. *Neuropsychologia*, 48(10), 3037–3044.

Nadeau, M., & Nolin, P. (2013). Attentional and executive functions in neglected children. *Journal of Child & Adolescent Trauma*, 6(1), 1-10.

National Society for the Prevention of Cruelty to Children (2017). Child Protection Register Statistics. [online.] Knowledge and Information Services.
<https://www.nspcc.org.uk/globalassets/documents/statistics-and-information/child-protection-register-statistics-england.pdf>

Nolin, P., & Ethier, L. (2007). Using neuropsychological profiles to classify neglected children with or without physical abuse. *Child Abuse and Neglect*, 31(6), 631-643.

Norman, D., & Shallice, T. (1986). Attention to action: willed and automatic control of behaviour (pp. 1-18). In R.J. Davidson & G.E. Schwartz & D. Shapiro (Eds.) *Consciousness and Self-Regulation. Advances in Research, Vol IV*. New York, US: Plenum Press.

Pears, K., & Fisher, P. A. (2005). Developmental, cognitive, and neuropsychological functioning in preschool-aged foster children: Associations with prior maltreatment and placement history. *Journal of Developmental and Behavioral Pediatrics*, 26(2), 112-122.

Pears, K. C., Kim, H. K., & Fisher, P. A. (2008). Psychosocial and cognitive functioning of children with specific profiles of maltreatment. *Child Abuse & Neglect*, 32(10), 958-971. doi:<http://dx.doi.org/10.1016/j.chiabu.2007.12.009>

Pears, K. C., Fisher, P. A., Bruce, J., Kim, H. K., Yoerger, K. (2010). Early Elementary School Adjustment of Maltreated Children in Foster Care: The Roles of Inhibitory Control and Caregiver Involvement. *Child Development*, 81(5), 1550-1564. doi: <http://dx.doi.org/10.1111/j.1467-8624.2010.01491.x>

Perez, C.M. & Widom, C.S. (1994). Childhood victimization and long-term intellectual and academic outcomes. *Child Abuse and Neglect*, 18(8), 617-633.

Perna, R. B., & Kiefner, M. (2013). Long-term cognitive sequelae: Abused children without PTSD. *Applied Neuropsychology: Child*, 2(1), 1-5.

Quamma, J. P. (1997). Executive function and social problem-solving in maltreated and non-maltreated preschool children (Ph.D.). Available from ProQuest Dissertations & Theses Global. (1997-95024-150).

Robbins, T., James, M., Owen, A., Sahakian, B., McInnes, L., & Rabbitt, P. (1997). A neural systems approach to the cognitive psychology of ageing using the CANTAB battery. In P. Rabbitt (Ed.) *Methodology of frontal executive function*, p. 81-116. Hove, East Sussex: Psychology Press.

Rushton, J. P., Brainerd, C. J., & Pressley, M. (1983). Behavioral development and construct validity: The principle of aggregation. *Psychological Bulletin*, 94(1), 18.

Scottish Intercollegiate Network Guidelines (2011). *Methodology Checklist 3: Cohort studies*. Edinburgh: Scottish Intercollegiate Network Guidelines.
<http://www.sign.ac.uk/guidelines/fulltext/50/checklist3.html>

Shallice, T. (1982). *Philosophical Transactions of the Royal Society of London*, 298, 199-209.

Shallice, T., & Burgess, P. (1991). Deficits in strategy application following frontal lobe damage in man. *Brain*, 114, 727-741.

Shoda, Y., Mischel, W., & Peake, P. K. (1990). Predicting adolescent cognitive and self-regulatory competencies from preschool delay of gratification: Identifying diagnostic conditions. *Developmental Psychology*, 26(6), 978-986.
doi:<http://dx.doi.org/10.1037/0012-1649.26.6.978>

Skowron, E.A., Cipriano-Essel, E., Gatzke-Kopp, L.M., Teti, D.M., Ammerman, R.T. (2014) Early adversity, RSA, and inhibitory control: evidence of children's neurobiological sensitivity to social context. *Dev Psychobiology*; 56: 964–78. doi: 10.1002/dev.21175

Spann, M. N., Mayes, L. C., Kalmar, J. H., Guiney, J., Womer, F. Y., Pittman, B., Blumberg, H. P. (2012). Childhood abuse and neglect and cognitive flexibility in adolescents. *Child Neuropsychology*, 18(2), 182-189.

Springer, K. W., Sheridan, J., Kuo, D., & Carnes, M. (2007). Long-term physical and mental health consequences of childhood physical abuse: Results from a large population-based sample of men and women. *Child Abuse & Neglect*, 31(5), 517-530. doi:<http://dx.doi.org/10.1016/j.chiabu.2007.01.003>

St ClairThompson, H. L., & Gathercole, S. E. (2006). Executive functions and achievements in school: Shifting, updating, inhibition, and working memory. *Quarterly Journal of Experimental Psychology*, 59(4), 745-759. doi:<http://dx.doi.org/10.1080/17470210500162854>

Stroop, J.R. (1935) Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, 18(6), 643–662. doi:10.1037/h0054651.

Tarullo, A. R., & Gunnar, M. R. (2006). Child maltreatment and the developing HPA axis. *Hormones and Behavior*, 50(Translational Topics in Behavioral Neuroendocrinology.), 632-639. doi:<http://dx.doi.org/10.1016/j.yhbeh.2006.06.010>

Tottenham, N. (2011). Elevated amygdala response to faces following early deprivation. *Developmental Science*, 14(2), 190-204.

Twardosz, S., & Lutzker, J. R. (2010). Child maltreatment and the developing brain: A review of neuroscience perspectives. *Aggression and Violent Behavior*, 15(1), 59-68.

US Department of Health and Human Services (USDHHS), Administration for Children and Families, Children's Bureau. (2015). *Child Maltreatment 2015*. Available at: <https://www.acf.hhs.gov/cb/resource/child-maltreatment-2015>. Accessed November 30, 2016.

van IJzendoorn, M. H., Palacios, J., Sonuga-Barke, E. J. S., Gunnar, M. R., Vorria, P., McCall, R. B., Juffer, F. (2011). I. Children in institutional care: Delayed Development and Resilience. *Monographs of the Society for Research in Child Development*, 76(4), 8-30. doi:10.1111/j.1540-5834.2011.00626.x

Vasilevski, V., & Tucker, A. (2016). Wide-ranging cognitive deficits in adolescents following early life maltreatment. *Neuropsychology*, 30(2), 239-246. doi: <http://dx.doi.org/10.1037/neu0000215>

Wager, T. D., & Smith, E. E. (2003). Neuroimaging studies of working memory: A meta-analysis. *Cognitive, Affective & Behavioral Neuroscience*, 3(4), 255-274. doi:<http://dx.doi.org/10.3758/CABN.3.4.255>

Weller, J. A., & Fisher, P. A. (2013). *Decision-making deficits among maltreated children*. US: Sage Publications. doi:10.1177/1077559512467846

Weller, J. A., Leve, L. D., Kim, H. K., Bhimji, J., & Fisher, P. A. (2015). Plasticity of risky decision making among maltreated adolescents: Evidence from a

randomized controlled trial. United Kingdom: Cambridge University Press.

doi:10.1017/S0954579415000140

Zelazo, P. D., Carter, A., Reznick, J. S., & Frye, D. (1997). Early development of executive function: A problem-solving framework. *Review of General Psychology*, 1(2), 198-226. doi:<http://dx.doi.org/10.1037/1089-2680.1.2.198>

Zelazo, P. D., & Müller, U. (2002). Executive function in typical and atypical development. In *Blackwell Handbook of Childhood Cognitive Development* (Ed U. Goswami), Blackwell Publishers Ltd: MA, USA. doi: 10.1002/9780470996652.ch20

Journal Article II: Empirical study

Emotional, behavioural, attachment and trauma-related difficulties in
children in foster care, and their impact on the parenting stress and sense
of competence of foster carers

Prepared in accordance with guidelines for *Child: Care, Health and Development*
(Appendix 5).

Word Count: 3643

Abstract

Background. Due to the relational trauma that most looked after children (LAC) have experienced they are at increased risk of attachment difficulties, and their carers need to provide sensitive and therapeutic care, whether or not this need is displayed behaviourally. The parenting task can thus be a considerable challenge. This study is the first to investigate the prevalence of attachment and trauma-related difficulties in foster children and their impact on the parenting task of carers.

Methods. Foster carers (n=52) of children in care aged 3-12 years completed a series of self-report measures investigating the emotional, behavioural, attachment and trauma related difficulties of foster children, the perceived quality of the relationship with their foster child, and levels of parenting stress and sense of competence (PSOC). Education staff (n=32) provided cross-informant ratings of child difficulties.

Results. Foster carers reported a high level of difficulties in their children, with the majority scoring above the recommended cut-offs for all measures. There was low interrater agreement between foster carers and education staff, with the former generally scoring children more highly. Hierarchical regression analyses revealed that inhibited attachment behaviour emerged as a significant predictor of perceived quality of the foster carer-child relationship and parenting stress. The level of emotional and behavioural difficulties emerged as a significant predictor of all outcome variables.

Conclusions. This novel study reveals the high prevalence of attachment and trauma-related difficulties in children in foster care, and provides insight into how attachment difficulties – in addition to emotional and behavioural difficulties –

impact on quality of the foster carer-child relationship, parenting stress and sense of competence. As such, it informs those interested in understanding and improving looked after children and foster carers' wellbeing and outcomes, promote placement stability, and also support the retention of foster carers. Additional research with larger samples to further explore relationships is now required.

Keywords: *attachment, trauma, looked after children, foster care, parenting stress*

List of abbreviations

BAC-C: Brief Assessment Checklist for Children

CPRS: Child Parent Relationship Scale

DASS-21: Depression Anxiety Stress Scale – 21 item

LAC: Looked after children

LAAFH: Looked After away from Home

PSI-F: Parenting Stress Index – Short Form

PSOC: Parenting Sense of Competence

RAD: Reactive Attachment Disorder

RPQ: Relationship Problems Questionnaire

SDQ: Strengths and Difficulties Questionnaire

1. Introduction

Research has consistently shown that looked after children (LAC) are more susceptible to mental health difficulties in comparison to the population at large (Dimigen et al 1999; Ford et al 2007; McCann et al 1996; Meltzer et al, 2003). Indeed, it is estimated that approximately half of all LAC experience mental health difficulties in comparison to 10% within the general population (National Institute for Health and Care Excellence, 2013). When assessing the mental health needs of LAC, standardised assessment measures such as the Strengths and Difficulties Questionnaire (SDQ), are commonly used. However, these are designed to screen for mental health symptoms typical for the general population whilst in LAC, other characteristics not captured by standard instruments are also commonly seen, such as attachment-related interpersonal difficulties, emotional dysregulation, trauma-related anxiety and dissociation, problematic sexual behaviour, abnormal responses to pain, excessive eating and food maintenance behaviours, and self-injury (Tarren-Sweeney, 2013a; Van den Dries et al, 2009). These attachment and trauma-related difficulties often occur as a result of maltreatment prior to accommodation, including physical, emotional and sexual abuse and/or neglect (Carlson et al, 1989; Cyr et al 2010; Schore, 2001).

Second only to kinship care, foster care is generally accepted as preferential to other forms of accommodating children who are looked after away from home (LAAFH). The role of the foster carer is to simultaneously provide the parenting dimensions of availability, sensitivity, acceptance, co-operation, and family membership within the context of a secure base (Schofield and Beek, 2006), and these children need sensitive, therapeutic care in order to develop self-regulatory

capacities for coping with negative affect. However, as a result of prior maltreatment, they are more likely to develop insecure or disorganised attachment strategies which, whilst often adaptive in their families of origin, may impede their ability to form positive relationships outside of the maltreating environment. Indeed, it is estimated that only 10% of LAC are securely attached to their biological parents, with the majority having insecure or disorganised patterns of attachment. Indeed, Green and Goldwyn (2002) estimated that insecure or disorganised attachments were seen in at least 65% of maltreated children. Other studies have estimated significantly higher rates of disorganised attachments in relation to children's maltreating or neglectful parents (Cicchetti *et al.*, 2006). Although disorganised attachment does not necessarily lead to the presence of mental health difficulties, it is related to the presence of externalizing behaviour (Guttmann-Steinmetz *et al.*, 2006) and difficulties with emotion regulation, both of which are likely to impede a child's ability to form close relationships with new carers (Zeanah *et al.*, 2011). This highlights the clinical utility of using attachment theory as a framework for understanding the difficulties experienced by children who are LAAFH, which might then be amenable to change follow attachment-based interventions (Kerr & Cossar, 2014). Indeed, many of these children behave in ways that fail to elicit caregiving or even as if they do not need caregivers (Dozier, Highley, Albus & Nutter, 2002). Thus the parenting task can, at times, be a considerable challenge. It has been reported that between 20-50% of foster placements break down (Minty, 1999), and whilst not all placement breakdowns result from child factors, meta-analytic findings suggest that child characteristics – including emotional and behavioural difficulties and attachment difficulties - do contribute (Oosterman *et al.* 2007).

Indeed, it is notable that the level of emotional and behavioural difficulties (assessed using the SDQ) in foster children appears to correlate with foster carer stress (Morgan and Baron, 2011), strain (Farmer, Lipscombe & Moyers, 2005), and wellbeing (Whenan, Oxlad & Lushington, 2009). Quality of the relationship between children and foster carers may be an important factor; indeed in one study foster carers who perceived a 'warmer' relationship with their child were more satisfied with their caregiving role (Whenan et al., 2009). Further research in this area is warranted, particularly with regard to how child attachment- and trauma-related difficulties impact on foster carers.

Despite the numerous studies conducted on samples of LAC that have examined the prevalence of emotional and behavioural difficulties using the SDQ and Child Behaviour Checklist, few studies have investigated the prevalence of attachment- and trauma-related difficulties. The initial aim of this study was therefore to investigate the prevalence of such difficulties as reported by foster carers and their child's school or nursery teacher. The second aim of this study was to investigate the relationships between emotional and behavioural, attachment and trauma-related difficulties in foster children and foster carers' sense of competence and parenting stress, and their perceived closeness of the relationship with their foster child. Based on the literature to date, it was hypothesised that a closer foster carer-child relationship, lower parenting stress and a higher sense of competence would be associated with a lower level of foster child attachment and trauma-related difficulties. Given the worldwide shortage of foster carers, the number of foster carers that leave the workforce annually, and the relatively high levels of placement breakdowns, research into the association between child difficulties, foster carer-

child relationships, foster carer parenting stress and sense of competence have potentially far reaching implications.

2. Method

2.1 Design

This cross-sectional study used quantitative self-report questionnaires completed by foster carers. In order to provide cross-informant ratings of child difficulties, school or nursery teacher reports of child behaviour using the SDQ and Relationship Problems Questionnaire (RPQ) were also included where possible.

2.2 Participants

Participants were foster carers registered in six Scottish local authorities and one private fostering agency who met the following criteria: (a) their foster child was between 3 and 12 years old and (b) their foster child did not have a diagnosed learning disability. Foster carers who had more than one eligible child in their care were instructed to complete the forms for whichever child's given name came alphabetically first. An *a priori* power analysis indicated that a minimum sample size of 84 was required to achieve .80 power, assuming a medium effect size (Cohen, 1992). Five foster carers with a child outside the age range completed questionnaires; these were not included.

2.3 Procedure

The University of Edinburgh, School of Health in Social Science, gave ethical approval for this study. Access to foster carers was authorised and provided by the local authorities in each geographical region, and a private fostering agency. Consent

from relevant local education authorities was also granted in order to collect cross-informant ratings from educational staff. Fostering social workers were informed about the study and requested to invite all foster carers within their caseload who met inclusion criteria to take part.

2.4 Measures

The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) is a 25-item screening instrument for common mental health problems in children aged 3-16 years and has carer and teacher-report forms; its 25 items are summed to produce a 'total difficulty' score. In the current sample, the internal consistency (Cronbach's alpha) was .69 for foster carer-report, and .75 for teacher-report.

The Relationship Problems Questionnaire (RPQ; Minnis et al., 2007) is a 10-item self-report scale designed to screen for social relatedness difficulties indicative of reactive attachment disorder (RAD) that might derive from prior poor attachment experiences, and is based on ICD-10 and DSM-IV diagnostic criteria. It has separate items related to disinhibited and inhibited behaviours, and it has parent- and teacher-report forms. Higher scores indicate behaviours suggestive of attachment difficulties. It shows good convergent validity with another RAD screening measure, the Reactive Attachment Disorder-Checklist (Thrall et al, 2009)). The internal consistency for total score was .79 for foster carer-report, and .81 for teacher-report; for inhibited and disinhibited subscales it was .83 and .88, respectively.

The Brief Assessment Checklist for Children (BAC-C; Tarren-Sweeney, 2013b) is a 20-item caregiver-report rating scale derived from the Assessment Checklist for Children (ACC) (Tarren-Sweeney, 2007) which was designed to screen

for and monitor attachment and trauma-related difficulties in children aged 3-11 years of age LAAFH. The internal consistency was .87 in the current sample.

The Child-Parent Relationship Scale (CPRS; Pianta, 1992) is a 15-item self-report scale designed to assess a parent's perception of their relationship with their child, in particular their closeness and level of conflict, with higher scores indicating higher perceived closeness in the relationship with their child. It is designed to assess parents' view of self as a caregiver. It shows good internal consistency but test-retest reliability has not been assessed to date. Construct validity is supported by correlations with structured observer reports of parent behaviours (Pianta, 1992). The internal consistency was .88 in the current sample.

The Parenting Stress Index-Short Form (PSI-SF; Abidin, 1995) is a 36-item self-report questionnaire for parents of children 12 years and under that measures stress directly associated with the parenting role, with higher scores indicating higher stress. The PSI-SF shows good internal consistency and test-retest reliability (Haskett et al, 2006). Convergent validity is supported by correlations with measures of theoretically related constructs (Barroso et al 2016). The internal consistency was .91 in the current sample.

The Parental Sense of Competence Scale (PSOC; Gibaud-Wallston, 1978 in Johnston & Mash, 1989) is a 17-item self-report questionnaire which assesses satisfaction and efficacy in parenting. The PSOC has been shown to have good internal consistency and test-retest reliability, and reasonable validity (Johnston & Mash, 1989; Ohan, Leung & Johnston, 2000). Higher scores indicate that the foster carer experiences a higher sense of competence with fostering. The internal consistency was .79 in the current sample.

2.5 Potential covariates

The Depression Anxiety Stress Scales (DASS-21; Lovibond and Lovibond, 1995) is a 21-item self-report measure designed to assess the dimensions of depression, anxiety and stress, with higher scores indicating higher levels of overall distress. Scores were examined as a potential covariate in analyses due to the impact that general psychological distress might have on parenting stress and efficacy. In addition, foster carer demographics (gender, whether single or cohabiting, number of children in their care, total number of foster children cared for, and length of time as foster carer) and child and placement factors (age, gender, length of time in current placement, number of previous placements and placement breakdowns) were collected and examined as potential covariates. These variables were selected for inclusion based on their theoretical validity and prior research demonstrating their potential impact on the outcomes of foster care placements (Oosterman et al., 2007).

2.6 Data analysis

Data were analysed using SPSS v. 22. Of the 52 participants, one participant had not filled in the BAC-C, one had not filled in the PSI-SF, so these participants were excluded from analysis involving these variables. Data were screened for missing variables, and since no variable had more than 0.04% per cent of data missing, all were retained for treatment using sample mean substitution (Fox-Wasylyshyn and El-Masri, 2005). Preliminary analyses were carried out to ensure the assumptions of linearity and homoscedasticity were met. Demographic and placement factors were examined as potential covariates using Pearson correlations or independent samples t-tests, as appropriate (see Appendix 22).

3. Results

3.1 Demographics

Descriptive and demographic characteristics of the sample are summarized in Table 1.

3.2 Child difficulties

Table 2 presents the descriptive statistics for the scores obtained by children on the SDQ (emotional and behavioural difficulties), RPQ (inhibited and disinhibited subscales), and BAC-C (attachment and trauma-related difficulties) as rated by their foster carers. In agreement with previous findings a high level difficulties were reported, with a mean (median) SDQ total score of 17.50 (18), a mean (median) score of 8.98 (8.5) for the RPQ, and a mean (median) score of 17.71 (18) for the BAC-C. 75.0% of children were in the clinical range for the SDQ (scores above the 90th percentile; Goodman, 2001), 61.5% were above the cut-off suggested for the RPQ (based on the distribution of RPQ scores and cluster analysis; Minnis et al., 2013), and 90.2% above the cut-off suggested for the BAC-C (optimised in relation to clinical case identification; Tarren-Sweeney, 2013b).

Table 1. *Characteristics of foster carers, the children in their care and placement (n=52).*

	<i>n</i>	<i>%</i>	<i>Mean (SD)</i>	<i>Range</i>
<i>Foster carer characteristics</i>				
Gender: Male	7	13.5		
Female	45	86.5		
Relationship status: Single	5	9.6		
Cohabiting	46	88.5		
Number of other foster children in home:			1.08 (0.90)	0-3
0	16	30.8		
1	19	36.5		
2	14	26.9		
3	3	5.8		
Total number of children in home:			2.52 (1.02)	1-6
1	6	11.5		
2	22	42.3		
3+	24	46.2		
Length of foster carer experience (years)			9.94 (8.68)	0.42-35.3
<i>Foster child characteristics</i>				
Age (months)			81.82 (35.41)	36.07-149.52
Gender: Male	27	51.9		
Female	25	48.1		
Length of time in current placement (months)			21.72 (15.90)	1.0 - 60.5
Total length of time LAAFH (months)			37.05 (27.90)	1.95-113.0
Number of previous placements			1.32 (1.48)	0-7
0	17	29.8		
1	15	26.3		
2	12	21.1		
3+	6	10.7		
Number of previous placement breakdowns			0.64 (1.38)	0-7
0	34	59.6		
1	11	19.3		
2	1	1.8		
3+	4	7.2		

Table 2. Means, standard deviations (SD) and range of obtained scores on the child variables ($n = 52$).

Measure	Mean	SD	Range	Number (%) over recommended cut-off
SDQ total difficulties	17.50	7.39	2-320	39 (75.0)
SDQ emotional	3.62	2.36	0-9	
SDQ hyperactivity	6.10	2.87	1-10	
SDQ conduct problems	3.98	2.74	0-10	
SDQ peer problems	3.63	2.39	0-8	
SDQ prosocial	5.29	2.07	1-10	
RPQ total	8.98	7.13	0-27	32 (61.5)
RPQ disinhibited	4.29	4.39	0-12	
RPQ inhibited	4.69	4.08	0-15	
BAC-C ¹	17.71	9.21	0-34	46 (90.2)

¹ $n=51$

Inspection of responses to individual items on the BAC-C highlights the pervasive extent of attachment and trauma-related difficulties of the children, with 41.2% being rated as eating too much, 25.5% showing no response to pain if physically hurt, 23.5% showing age-inappropriate sexualised behaviour, 47.1% as experiencing traumatic memories, and 51.0% were described as startling easily or being 'jumpy'. Similarly, 26.9% of children were described as looking frozen with fear, without an obvious reason, on the RPQ. The majority of children (64.7%) were

described as fearing rejection from their foster carer, and 47.1% were rated as treating their foster carer as the child, and themselves as the parent.

Individual relationships among the child difficulty variables were explored using Pearson correlations (see Table 5). Strong positive correlations were found between scores for perceived foster child difficulties, with higher levels of attachment and trauma-related difficulties (RPQ and BAC-C) associated with higher levels of emotional and behavioural difficulties (SDQ total difficulties).

Pearson correlations (or independent *t* tests for categorical variables) were calculated to determine whether child difficulties were related to their characteristics (age, gender, length of time in placement, number of previous foster placements and previous placement breakdowns). There was a significant difference between RPQ inhibition and gender, with males scoring higher than females ($t_{49} = 2.33, p = .024$); no other significant correlations were found.

3.3 Comparison of foster carer and teacher rated child difficulties

Overall, foster carers rated higher levels of emotional, behavioural and attachment-related difficulties in foster children compared with teachers (see Table 3). Significant differences between all scores were found except for the SDQ prosocial and the RPQ disinhibited subscales. Agreements between foster carers and teachers in identifying children with scores above the recommended cut-offs for the SDQ and RPQ total scores were poor (kappa coefficients of .16 and .20, respectively), which represents only 'slight' agreement (Landis and Koch, 1977). Independent samples *t*-tests confirmed there were no differences in variable scores between participants for whom co-ratings were available. For the purposes of

subsequent hypotheses in this study, since the important predictor variables were foster carers' perceptions of their child's difficulties and how these impact on their experience of caring for them, only foster carer ratings were considered.

Table 3. Means, SD and range of foster carer and teacher SDQ and RPQ scores (n=32), and interrater agreement (independent samples *t*-test).

		Foster carer report			Teacher report			Agreement
		Mean	SD	Range	Mean	SD	Range	<i>t</i> _(df) value
SDQ	Total difficulties	17.34	6.50	6-30	12.59	6.78	0-28	<i>t</i> ₍₃₁₎ = 4.29**
	Emotional symptoms	3.84	2.38	0-9	2.69	2.67	0-9	<i>t</i> ₍₃₁₎ = 2.63*
	Hyperactivity	6.03	2.75	1-10	2.34	2.24	0-9	<i>t</i> ₍₃₁₎ = 6.40**
	Conduct problems	3.94	2.68	0-10	2.09	2.07	0-7	<i>t</i> ₍₃₁₎ = 3.69**
	Peer problems	3.72	2.54	0-8	2.59	2.17	0-8	<i>t</i> ₍₃₁₎ = 2.79*
	Prosocial	5.06	2.02	1-10	5.56	1.95	0-10	<i>t</i> ₍₃₁₎ = -1.17
RPQ	Total	9.22	7.24	0-26	5.66	5.88	0-21	<i>t</i> ₍₃₁₎ = 3.07**
	Disinhibited	4.97	4.48	0-12	3.50	3.89	0-12	<i>t</i> ₍₃₁₎ = 1.97
	Inhibited	4.25	4.18	0-14	2.16	2.78	0-10	<i>t</i> ₍₃₁₎ = 2.75*

* *p* < .05, ** *p* < .01 (2-tailed)

3.4 Outcome variables: foster carer factors

Table 4 presents the descriptive statistics for the scores obtained by foster carers on parenting stress and sense of competence. Foster carers in the study had relatively high levels of parenting stress with 29.4% (n=15) having scores in the borderline-clinical range (Abidin 1995); this is in line with levels of stress found in a previous sample of foster carers (Morgan and Baron, 2011). The mean score for sense of competence was in line with scores found in a community sample of parents (Ohan and Johnston, 2000).

Table 4. Means, standard deviations (SD) and range of obtained scores on the foster carer variables (n = 52).

	Mean	SD	Range
CPRS	55.09	12.72	16-75
PSOC	62.20	10.68	38-84
PSI-SF	72.53	19.90	35-116

¹ n=51

The mean DASS21 overall distress score was low (3.65; SD=4.23) with scores for anxiety, depression and stress all within the “normal” range (Lovibond and Lovibond, 1995), suggesting foster carers had good general wellbeing, consistent with foster carer wellbeing in another study (Cole & Eamon, 2007). Since DASS-21 scores significantly correlated with the outcome variables PSI-SF, PSOC and CPRS; see Table 5) these were included as a covariate in further analyses.

3.5 Relationships between child difficulties, perceived quality of the relationship, parenting stress and sense of competence

Table 5 shows the linear relationships between scores on the SDQ, RPQ, BAC-C, and perceived child-foster carer relationship (CPRS), sense of competence (PSOC) and stress (PSI-SF). Positive and significant correlations were found between the all child difficulty measures as rated by foster carers and parenting stress, and negative correlations with the perceived quality of the relationship and sense of competence. Unexpectedly, no significant correlations were found between teacher ratings of child difficulties and the outcome variables, therefore in remaining analyses only foster carer ratings or child difficulties are included.

Table 5. *Exploratory correlation analyses between predictor and outcome variables.*

	SDQ total	RPQ-D	RPQ-I	BAC-C	CPRS	PSOC	PSI-SF
1. SDQ total	-	.520**	.706**	.794**	-.658**	-.529*	.677**
2. RPQ-disinhibited		-	.416*	.582**	-.207	-.278	.277
3. RPQ-inhibited			-	.731**	-.703**	-.414*	.699**
4. BAC-C				-	-.598**	-.425*	.589**
5. CPRS					-	.587**	-.821**
6. PSOC						-	-.535**
7. PSI-SF							-
8. DASS-21					-.388*	-.472**	-.535**

*p < .01 **p < .001 (2-tailed) [A conservative p-value of .01 was used for the correlation analyses in order to manage the type 1 error rate related to undertaking multiple analyses]. Abbreviations: SDQ: Strengths and Difficulties Questionnaire; RPQ: Relationship Problems Questionnaire; RPQ-D: RPQ disinhibited; RPQ-I: RPQ inhibited; BAC-C: Brief Assessment Checklist for Children; CPRS: Child Parent Relationship Scale; PSI-SF: Parenting Stress Index-Short Form; PSOC: Parenting Sense of Competence; DASS-21: Depression Anxiety Stress Scale-21 item.

3.6 Explaining parenting stress and sense of competence

Three hierarchical multiple linear regression analyses were carried out in order to determine the explanatory power of child difficulties with respect to the dependent variables quality of foster carer-child relationship (CPRS), foster carer parenting stress (PSI-SF), and sense of competence (PSOC) scores. Significant covariates (see Appendix 22) were entered at the first step, and predictor variables that were significant in preliminary correlation analyses were entered at the second step. Tables 6-8 present the partial regression coefficients and their standard errors, as well as the explained variance and the statistical significance of the variables that were shown to explain each of the outcome variables: quality of foster carer-child relationship (Table 6); parenting stress (Table 7); parenting sense of competence (Table 8).

In the linear regression analysis for quality of foster carer-child relationship, a significant model emerged for the effects of foster carer psychological distress and length of foster carer experience at step 1 ($R^2 = .174$, *Adjusted* $R^2 = .135$, $F_{(2,48)} = 4.525$, $p = .016$, $f^2 = .21$), which explained 17.4% of the variance in CPRS scores (Cohen, 1988) with a medium effect size. Inclusion of child difficulties (SDQ, RPQ-Inhibited and BAC-C) at step 2 led to a significant increase in the proportion of the variance in quality of the relationship accounted for with a large effect size ($R^2 = .574$, *Adjusted* $R^2 = .521$, $F_{(5,45)} = 10.796$, $p < .001$, $f^2 = 1.35$), which explained an additional 40.0% of the variance in CPRS scores (Cohen, 1988). Only inhibited attachment difficulties (RPQ-Inhibited) independently contributed to the final model (see Table 6).

In the linear regression analysis for parenting stress, a significant model emerged for the effects of foster carer psychological distress and length of foster

carer experience at step 1 ($R^2 = .353$, *Adjusted R*² = .322, $F_{(1,47)} = 11.446$, $p < .001$, $f^2 = .55$), which explained 35.3% of the variance in PSI-SF scores with a large effect size (Cohen, 1988). Inclusion of child difficulties (SDQ, RPQ-Inhibited and BAC-C) at step 2 led to a significant increase in the proportion of the variance in quality of the relationship accounted for with a large effect size ($R^2 = .665$, *Adjusted R*² = .622, $F_{(3,44)} = 15.473$, $p < .001$, $f^2 = 1.99$), which explained an additional 31.2% of the variance in PSI-SF scores (Cohen, 1988). Only foster carer psychological distress and inhibited attachment difficulties (RPQ-Inhibited) independently contributed to the final model (see Table 7).

In the linear regression analysis for parenting sense of competence, a significant model emerged for the effects of foster carer psychological distress, child age and length of foster carer experience at step 1 ($R^2 = .285$, *Adjusted R*² = .232, $F_{(1,48)} = 5.440$, $p = .003$, $f^2 = .40$), which explained 28.5% of the variance in PSOC scores with a medium effect size (Cohen, 1988). Inclusion of child difficulties (SDQ, RPQ-Inhibited and BAC-C) at step 2 led to a significant increase in the proportion of the variance in quality of the relationship accounted for with a large effect size ($R^2 = .506$, *Adjusted R*² = .428, $F_{(3,45)} = 6.481$, $p < .001$, $f^2 = 1.02$), which explained an additional 22.1% of the variance in PSOC scores with a large effect size (Cohen, 1988). Only child age and child emotional and behavioural difficulties (SDQ) independently contributed to the final model (see Table 8).

Table 6 *Coefficients obtained for the variables shown by the regression model to explain quality of the foster carer-child relationship.*

Outcome variable	Predictor variables included in the model	B	SE	β	t	R^2	ΔR^2
Quality of relationship (CPRS)	<u>Step 1</u>						
	(Constant)	56.542	3.323		17.015		
	1. DASS-21	-1.425	0.583	-.341	-2.444*		
	2. Length of foster carer experience	.292	.202	.202	1.446		
						.174	.135
	<u>Step 2</u>						
	(Constant)	70.760	4.495		15.740		
	1. DASS -21	-.421	0.473	-.101	-.892		
	2. Length of foster carer experience	.127	0.155	.087	.816		
	2. SDQ	-.630	0.325	-.361	-1.940		
	3. RPQ inhibition	-1.115	0.466	-.386	-2.391*		
	4. BAC-C	-.002	0.278	-.002	-.008		
						.574	.521

* $p < .05$, ** $p < .01$

SE: standard error

Table 7. *Coefficients obtained for the variables shown by the regression model to explain parenting stress.*

Outcome variable	Predictor variables included in the model	B	SE	β	t	R^2	ΔR^2
Parenting Stress (PSI-SF)	<u>Step 1</u>						
	(Constant)	69.910	4.643		15.056		
	1. DASS-21	3.067	0.803	.478	3.818**		
	2. Length of foster carer experience	-.647	0.277	-.293	-0.337*		
						.353	.322
	<u>Step 2</u>						
	(Constant)	50.779	6.778		7.492		
	1. DASS-21	1.813	.648	.317	2.797**		
	2. Length of foster carer experience	-.395	.216		-1.830		
	3. SDQ	.820	0.455	.438	1.800		
	4. RPQ inhibition	1.750	0.648	.353	2.699**		
	5. BAC-C	-.082	0.382	.129	-.215		
						.665	.622

Table 8. *Coefficients obtained for the variables shown by the regression model to explain parenting sense of competence.*

Outcome variable	Predictor variables included in the model	B	SE	β	t	R^2	ΔR^2
Parenting Sense of Competence (PSOC)	<u>Step 1</u>						
	(Constant)	61.503	5.177		11.880		
	1. DASS-21	-1.398	0.517	-.402	-2.701*		
	2. Child age	.034	.045	.218	.747		
	3. Length of foster carer experience	.263	.161	.110	1.635		
						.285	.232
	<u>Step 2</u>						
	(Constant)	67.654	5.063		13.364		
	1. DASS-21	-.428	0.525	-.123	-.816		
	2. Child age	.109	0.043	.358	2.539		
	3. Length of foster carer experience	.133	0.144	-.463	.924		
	4. SDQ	-.671	0.317	-.012	-2.116*		
	5. RPQ inhibition	-.029	0.433	-.106	-.068		
	6. BAC-C	-.129	0.266		-.488		
						.506	.428

*p < .05, **p < .01

SE: standard error

4. Discussion

4.1 Investigation of attachment and trauma related difficulties in foster children

The severity and prevalence of emotional and behavioural difficulties (SDQ) in this sample of foster children are consistent with those found in larger UK LAC samples (Goodman and Goodman, 2012). However this is, to the authors' knowledge, the first study to report on the level of attachment and trauma-related difficulties in looked after children using both the RPQ and BAC-C, in conjunction with the SDQ. The majority of children had RPQ and BAC-C scores above the recommended cut-off scores (Minnis et al 2013; Tarren-Sweeney, 2013b), suggesting that a high proportion of LAC in foster care within this age range are living with a complex array of difficulties – and high levels of unmet need - which are likely to have a pervasive impact on their daily functioning and future outcomes. These findings highlight the added value of including these brief screening measures in the assessment of LAC in order to capture a fuller vulnerability profile (Tarren-Sweeney, 2013a), and support the use of the RPQ outside of its intended utility as a diagnostic aide (Minnis et al, 2007).

Unexpectedly, no significant correlations were found between child attachment and trauma-related difficulties, placement duration or length of time that the children had been LAAFH. This is in contrast to a study with previously institutionalised children in whom inhibited attachment behaviours reduced as the length of time in their foster placement increased (Smyke et al, 2012). However, there are likely to be a range of wider placement factors not captured in this study that might explain this, such as a child's real or perceived uncertainty regarding their current placement, for example whether they expect to return to their birth parents'

care, and quality and frequency of contact with birth family members. Only longitudinal analyses would determine whether children's attachment difficulties reduced over time in foster placement.

Notably, there was low interrater agreement on perceived child difficulties between foster carers and teachers, with foster carers generally reporting significantly higher levels of child difficulties using both measures. Similarly, low carer and teacher interrater agreements have been found in a community sample of children (Sawyer et al, 1992) and children in foster care (Tarren-Sweeney & Carr, 2004). There are a number of possible reasons for this finding, for example attachment difficulties might be expected to be more apparent in the caregiving relationship and thus the specific behaviours assessed may be less manifest in school settings. Although it is not possible to determine whether foster carers or teachers are more or less reliable, or the differences reflect real context-specificity regarding difficulties, the differing perspectives highlight the relevance of using multiple informants in research and in the assessment of emotional, behavioural and attachment difficulties. It should be pointed out that, whilst a teacher may be a good informant about a child's behaviour in school, foster carers are necessarily the best informants about a child's behaviour in the home. In lieu of a gold standard, such as direct observations or clinician interview, standardised assessment measures alone do not enable a determination of how 'accurate' any foster carer or teacher report is (Tarren-Sweeney & Carr, 2004).

4.2 Relationships between perceived child difficulties and parenting outcomes

As predicted, correlational analyses revealed that foster carer-rated attachment and trauma-related difficulties (using the RPQ and BAC-C) were

significantly associated with parenting stress and sense of competence, in addition to the previously demonstrated significant relationships with perceived emotional and behavioural difficulties using the SDQ (Morgan and Baron, 2011). Closer foster carer-child relationships were also associated with lower levels of attachment and trauma-related difficulties, as well as emotional and behavioral difficulties.

Inspection of associations using the inhibited and disinhibited subscales of the RPQ revealed that only the inhibited subscale was significantly associated with parenting outcomes. These novel findings raise the possibility that the unpredictably and hypervigilance associated with the inhibited phenotype has a greater negative impact on foster carers than the indiscriminate sociability associated with the disinhibited phenotype. These findings now need to be explored further with larger samples of foster carers. Further, the finding that males scored significantly more highly than females on the inhibited phenotype warrants further investigation.

In agreement with previous findings, parenting sense of competence was significantly related to foster carer wellbeing and parenting stress (Kerr, 2012; Whenan et al, 2009). This is similar to the results involving biological parents (Kuhn & Carter, 2006; Kwok & Wong, 2000; Mash & Johnston, 1983; Raver & Leadbeater, 1999). Foster carers with negative perceptions of their competence as foster carers, and high levels of parenting stress associated with their role, may be more likely to experience less satisfaction with fostering. This could have important implications for placement outcomes, and also the retention of foster carers.

Multivariate analyses with quality of the relationship and parenting stress as outcome variables revealed significant associations between inhibited attachment behaviours, and emotional and behavioural difficulties. This is the first study to look at the impact of attachment-related difficulties of children in foster care on their

carers and suggests that it is specifically inhibited attachment behaviours that predict foster carers' perceptions of the quality of the relationship and the parenting stress associated with caring for such children. Importantly, these specific child difficulties were predictive of placement quality even when the effect of foster carer wellbeing was accounted for. Interestingly, difficulties associated with disinhibited attachment were not associated with quality of the relationship or the parenting stress and sense of competence of foster carers. This provides further support for the possibility that it the more emotionally withdrawn and unpredictable behaviours associated with the inhibited phenotype that particularly affect foster carers' perceptions of the quality of their relationship with the child, and the stress associated with caring for them. Notably, the difficulties captured by the BAC-C which are commonly seen in looked after children (Tarren Sweeney, 2013a) did not predict any of the outcome variables in this sample. Unexpectedly, multivariate analyses did not reveal any significant associations for attachment or trauma-related difficulties with parenting sense of competence; only emotional and behavioural difficulties were significant predictors. The latter finding is particularly noteworthy given the fact that higher levels of behavioural difficulties have been shown to predict placement breakdown (Oosterman et al, 2007). Furthermore, low levels of parenting sense of competence have been shown to reduce foster carer wellbeing (Morgan and Baron, 2011).

4.3 Clinical and practice implications

Given the high level of parenting stress of foster carers in this study, additional training to help them understand different attachment-related presentations, recognize change and progress in their foster children, and equip them with skills to manage child difficulties, may serve to reduce the stress associated with parenting such children, improve the quality of the foster carer-child relationship

and, in turn, placement stability (Golding & Picken, 2004). Indeed, the provision of enhanced training regarding attachment has been shown to increase foster carer retention (Chamberlain, Moreland and Reid, 1992; Whenan et al, 2009).

In terms of the children themselves, there is some evidence to suggest that interventions can be effective in reducing emotional, behavioural, and attachment-related difficulties of children in foster care (see Kerr and Cossar, 2014). In addition, some attachment-based programs have been shown to reduce parenting stress (Laybourne, Anderson and Sands, 2008) and increase parenting efficacy (Wassell, 2011). Although resource-intensive interventions are hard to justify in the current economic climate, given the potential economic implications of sustained emotional, behavioural, and attachment-related difficulties, in and beyond their current placement (Ward, Holmes, Soper and Olsen, 2004), the provision of such interventions should certainly be given due consideration.

4.4 Limitations of study

A significant limitation of the study is the relatively small sample size and, as a consequence, limited statistical power to detect significant relationships in the regression analyses. A further limitation relates to the selection of participants, the majority of whom were invited to attend by their social workers, which introduces an unknown degree of sampling bias. Furthermore, no data regarding the proportion of foster carers who met inclusion criteria and were invited to take part, or those who chose not to, is available.

In addition, the self-report measures relating to foster carer parenting are susceptible to social desirability bias and it is possible that foster carers, as paid carers, felt an onus to provide more favourable responses in relation to their own

parenting experiences. Also, using foster carer-reports to identify relational difficulties in which the foster carer themselves may play a part is potentially problematic. Another limitation relates to the use of foster carer reports in both attachment-related predictor variables and the outcome variable relating to the perceived quality of the foster carer-child relationship. However, direct observations and/or clinical interviews were beyond the scope of this study. Also, given the low interrater agreement between foster carers and education staff, the question of who is best placed to report on attachment difficulties remains unanswered. A further limitation is that there are likely to be other variables not included in our regression analyses that might also predict the selected outcome variables. Finally, the cross-sectional design employed means that it is not possible to determine how the variables develop over time and causality cannot be assumed.

Replication of these findings is required to confirm the importance of the factors that emerged from the analyses, and only longitudinal studies will elucidate the predictive validity of child difficulties on foster carers. Given the impact of placement breakdown on foster children's outcomes (Percora et al, 2005), longitudinal studies could also consider the impact of child attachment-related difficulties on placement stability. Given the relatively low number of teacher ratings of child difficulties in the current study, future studies with larger sample sizes should examine whether there is a correlation between teacher-rated child difficulties and the caregiving experience of foster carers. Further, research exploring additional factors underlying the impact of attachment-related difficulties on foster carers is important. For example, attachment theory posits that foster carers' own attachment status should play an important role, and this could be assessed in future studies using the Adult Attachment Interview. Consideration of the relationship between foster carer and child from the child's perspective – in addition to the foster carers - would also be worthwhile.

4.5 Conclusions

This study set out to investigate the prevalence of attachment and trauma-related difficulties in children in foster care aged 3-12 years, and how they impact on a cross-sectional sample of foster carers. Findings indicated a high level of attachment and trauma-related difficulties in this sample of children in foster care. Higher levels of such difficulties were associated with foster carers' perceived quality of the relationship, and parenting stress and sense of competence. Further, emotional and behavioural, and inhibited attachment behaviours predicted quality of the relationship and parenting stress, whilst emotional and behavioural difficulties

alone predicted sense of competence. Whilst these findings should be interpreted cautiously given the low sample size, they nevertheless have significant implications in terms of service provision for both looked after children to improve outcomes, and also foster carers, to help them manage the challenges of parenting children with a range of difficulties. Results highlight the need for future research within this area to look more closely at the relationships between variables.

5. References

- Abidin, R. R. (1995) Parenting Stress Index: Professional Manual (3rd ed.). Odessa, FL: Psychological Assessment Resources, Inc.
- Barroso, N.E., Hungerford, G.M., Garcia, D., Graziano, P.A. & Bagner, D.M. (2016). Psychometric Properties of the Parenting Stress Index-Short Form (PSI-SF) in a High-Risk Sample of Mothers and their Infants, *Psychol Assessment*, 28(10), 1331–1335. doi: 10.1037/pas0000257
- Carlson, V., Cicchetti, D, Barnett, D., Braunwald, K. (1989) Disorganized/disoriented attachment relationships in maltreated infants. *Developmental Psychology*, 25(4), 525-531. doi: <http://dx.doi.org/10.1037/0012-1649.25.4.525>
- Chamberlain, P., Moreland, S., & Reid, K. (1992) Enhanced services and stipends for foster parents: Effects on retention rates and outcomes for children. *Child Welfare*, 81, 387–401.
- Cicchetti, D., Rogosch, F.A. & Toth, S.L. (2006). Fostering secure attachment in infants in maltreating families through preventive interventions. *Developmental Psychopathology*, 18(3), 623-649.
- Cohen, J. (1992) A power primer. *Psychological Bulletin*, 112(1), 155-159.
- Cohen, J. (1988) Statistical Power Analysis for the Behavioral Sciences. Erlbaum: Hillsdale, NJ, USA.
- Cole, S. A., & Eamon, M. K. (2007) Predictors of depressive symptoms among foster caregivers. *Child Abuse & Neglect*, 31, 295–310.

- Cyr, C., Euser, E.M., Bakermans-Kranenburg, M.J., Van Ijzendoorn, M.H. (2010) Attachment security and disorganization in maltreating and high-risk families: a series of meta-analyses. *Developmental Psychopathology*, 22(1), 87-108. doi: 10.1017/S0954579409990289.
- Dimigen, G., Del Priore, C., Butler, S., Evans, S., Ferguson, L. & Swan, M. (1999) Psychiatric disorder among children at time of entering local authority care: questionnaire survey. *British Medical Journal*, 319(7211), 675.
- Dozier, M., Highley, E., Albus, K.E. & Nutter, A. (2002) Intervening with foster infants' caregiver: targeting three needs. *Infant Mental Health Journal*, 23(5), 541-554.
- Farmer, E., Lipscombe, J. & Moyers, S. (2005) Foster carer strain and its impact on parenting and placement outcomes for adolescents. *British Journal of Social Work*, 35(2), 237-253.
- Ford, T., Vostanis, P., Meltzer, H. & Goodman, R. (2007) Psychiatric disorder among British children looked after by local authorities: comparison with children living in private households. *British Journal of Psychiatry*, 190, 319-325.
- Fox-Wasylyshyn, S. M. & El-Masri, M. M. (2005) Handling missing data in self-report measures. *Research in Nursing and Health*, 28, 488-495.
- Golding, K. & Picken, W. (2004) Group work for foster carers caring for children with complex problems. *Adoption & Fostering*, 28(1), 25-37
- Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire (SDQ) *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 1337-1345.

Goodman, A. & Goodman, R. (2012) Strengths and Difficulties Questionnaire scores and mental health in looked after children. *British Journal of Psychiatry*, 200(5), 426-427.

Goodman, R. (1997) The Strengths and Difficulties Questionnaire: a research note. *Journal of Child Psychology and Psychiatry*, 38, 581-586.

Green, J. & Goldwyn, R. (2002). Annotation: attachment disorganisation and psychopathology: new findings in attachment research and their potential implications for developmental psychopathology in childhood. *Journal of Child Psychology and Psychiatry*, 43(7), 835-846.

Guttmann-Steinmetz, S. & Crowell, J.A. (2006). Attachment and externalizing disorders: a developmental psychopathology perspective. *Journal of the American Academy of Child and Adolescent Psychiatry*, 45(4), 440-451.

Haskett, M.E., Ahern, L.S., Ward, C.S. & Allaire, J.C. (2006). Factor structure and validity of the Parenting Stress Index-Short Form. *Journal of Clinical Child and Adolescent Psychology* 35(2), 302-312.

Johnston, C. & Mash, E.J. (1989) A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology*, 18, 167-175.

Kerr, L., & Cossar, J. (2014) Attachment Interventions with Foster and Adoptive Parents: A Systematic Review. *Child Abuse Review*, 23(6), 426-439. doi: 10.1002/car.2313

Landis, JR & Koch, GG (1977) The measurement of observer agreement for categorical data. *Biometrics*, 3: 159-174.

Laybourne, G, Andersen, J, & Sands, J (2008) Fostering attachments in looked after children: Further insight into the group-based programme for foster carers. *Adoption & Fostering*, 32(4): 64-76.

Lovibond, S.H. & Lovibond, P.F. (1995) Manual for the Depression Anxiety Stress Scales (Second Ed.) Sydney: Psychology Foundation. ISBN 7334-1423-0.

McCann J.B., James A., Wilson, S., Dunn, G. (1996) Prevalence of psychiatric disorders in young people in the care system. *British Medical Journal*, 313, 1529-30.

Meltzer H, Corbin T, Gatward R, Goodman, R and Ford, T (2003) The Mental Health of Young People Looked After by Local Authorities in England: A survey carried out by the social survey division of ONS on behalf of the Department of Health. London: The Stationery Office.

Minnis, H., Reekie, J., Young, D., O'Connor, T., Ronald, A., Gray, A. & Plomin, R. (2007) Genetic, environmental and gender influences on attachment disorder behaviours. *British Journal of Psychiatry*, 190, 490-495.

Minnis, H., Macmillan, S., Pritchett, R., Young, D., Wallace, B., Butcher, J., Sim, F., Baynham, K., Davidson, C. & Gilberg, C. (2013) Prevalence of reactive attachment disorder in a deprived population. *British Journal of Psychiatry*, 202(5), 342-346.

Minty, B (1999) Annotation: Outcomes in Long-term Foster Family care. *Journal of Child Psychology and Psychiatry*, 40(7): 991-999.

Morgan, K., & Baron, R. (2011) Challenging behaviour in looked after young people, feelings of parental self-efficacy and psychological wellbeing in foster carers. *Adoption and Fostering*, 35(1), 18-32.

National Institute for Health and Clinical Excellence (NICE) (2013) Nice Clinical Guideline PH28: Looked after children and young people. NICE: London.

Ohan, J.L., Leung, D.W. & Johnston, C. (2000). The Parenting Sense of Competence Scale: Evidence of a Stable Factor Structure and Validity. *Canadian Journal of Behavioural Science*, 32(4), 251-261.

Oosterman, M., Schuengel, C., Wim Slot, N., Bullens, R.A.R. & Doreleijers, T.A.H. (2007) Disruptions in foster care: a review and meta-analysis. *Children and Youth Services Review*, 29, 53-76.

Pecora, P. J., Kessler, R. K., Williams, J., O'Brien, K., Downs, A. C., English, D., White, C.R., Hiripi, E., Wiggins, T. & Holmes, K. (2005). *Improving family foster care: Findings from the Northwest Foster Care Alumni Study*. Seattle, WA: Casey Family Programs. www.casey.org

Pianta, R.C. (1992) Child Parent Relationship Scale. Charlottesville, Virginia: Curry School of Education, University of Virginia.

Sawyer, M. G., Baghurst, P. & Clark, J. (1992) Differences between reports from children, parents and teachers: implications for epidemiological studies. *Australian and New Zealand Journal of Psychiatry*, 26, 652–660.

Schofield, G. & Beek, M. (2006) Attachment handbook for foster care and adoption. British Association for Adoption and Fostering, London.

Schore, A.N. (2001) The effects of early relational trauma on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal*, 22(1-2), 201-269.

- Smyke, A.T., Zeanah, C.H., Gleason, M.M., Drury, S.S., Fox, N.A., Nelson, C.A., Guthrie, D. (2012). A randomized Controlled Trial Comparing Foster Care and institutional Care for Children with Signs of reactive Attachment Disorder. *American Journal of Psychiatry*, 169, 508–514. doi.org/10.1176/appi.ajp.2011.11050748
- Tarren-Sweeney, M. (2007) The Assessment Checklist for Children - ACC: A behavioral rating scale for children in foster, kinship and residential care. *Children and Youth Services Review*, 29(5), 672-691.
- Tarren-Sweeney, M. (2013a) An investigation of complex attachment and trauma related symptomatology among children in foster, kinship and residential care. *Child Psychiatry and Human Development*, 44(6), 727-741.
- Tarren-Sweeney, M. (2013b) The Brief Assessment Checklists (BAC-C, BAC-A): Mental health screening measures for school-aged children and adolescents in foster, kinship, residential and adoptive care. *Children and Youth Services Review*, 35(5), 771-779.
- Thrall, E. E., Hall, C. W., Golden, J. A., & Sheaffer, B. L. (2009). Screening measures for children and adolescents with reactive attachment disorder. *Behavioral Development Bulletin*, 15(1), 4-10. <http://dx.doi.org/10.1037/h0100508>
- Van den Dries, L., Juffer, F., van IJzendoorn, M. H., Bakermans-Kranenburg, M.J. (2009) Fostering security? A meta-analysis of attachment in adopted children. *Children and Youth Services Review*, 31(3), 410-421.
- Ward, H., Holmes, L., Soper, J. & Olsen, R. (2004) Costs and Consequences of Different Types of Child Care Provision, Loughborough: Loughborough University, Centre for Child and Family Research.

Wassell, S. (2011) Evaluation of an attachment theory based parenting group for Foster carers and adoptive parents. Unpublished doctoral thesis, University of Birmingham.

Whenan, R., Oxlad, M. & Lushington, K. (2009) Factors associated with foster carer well-being, satisfaction and intention to continue providing out of home care. *Children and Youth Services Review*, 31, 752-760.

Zeanah, C.H., Berlin, L.J. & Boris, N.W. (2011). Practitioner review: clinical applications of attachment theory and research for infants and young children. *Journal of Child Psychology and Psychiatry*, 52(8), 819-833.

Thesis References

- Aarons, G.A., Brown, S.A., Hough, R.L., Garland, A.F. & Wood, P.A. (2001) Prevalence of adolescent substance use disorders across five sectors of care. *Journal American Academy Child Adolescent Psychiatry*, 40(4), 419-26. DOI: 10.1097/00004583-200104000-00010
- Abidin, R. R. (1995) Parenting Stress Index: Professional Manual (3rd ed.). Odessa, FL: Psychological Assessment Resources, Inc.
- Afifi, T. O., & MacMillan, H. L. (2011). Resilience following child maltreatment: A review of protective factors. *Canadian Journal of Psychiatry*, 56(5), 266-272. Doi: <http://dx.doi.org/10.1177/070674371105600505>
- Ardila, A., Pineda, D. & Rossello, M. (2000) Correlation between intelligence test scores and executive function measures. *Arch Clin Neuropsychol* 15(1), 31-36.
- Arffa, S. (2007) The relationship of intelligence to executive function and non-executive function measures in a sample of average, above average, and gifted youth. *Arch Clin Neuropsychol.*,22(8), 969-78. DOI: 10.1016/j.acn.2007.08.001
- Augusti, E. M., & Melinder, A. (2013). Maltreatment is associated with specific impairments in executive functions: A pilot study. *Journal of Traumatic Stress*, 26(6), 780-783. Doi: <http://dx.doi.org/10.1002/jts.21860>
- Baddeley, A. D., & Hitch, G. (1974). Working memory. *Psychology of Learning and Motivation*, 8, 47-89.
- Barkley, R.A. (1997). Behavioural inhibition, sustained attention, and executive

functions: Constructing a unifying theory of ADHD. *Psychological Bulletin*, 121, 65-94.

Barroso, N.E., Hungerford, G.M., Garcia, D., Graziano, P.A. & Bagner, D.M. (2016). Psychometric Properties of the Parenting Stress Index-Short Form (PSI-SF) in a High-Risk Sample of Mothers and their Infants, *Psychol Assessment*, 28(10), 1331–1335. doi: 10.1037/pas0000257

Broomand, C. E. (2003). The effects of physical abuse on the development of executive functions in children (Ph.D.). Available from ProQuest Dissertations & Theses Global. (276595233).

Bruce, J., Fisher, P. A., Graham, A. M., Moore, W. E., Peake, S. J., & Mannering, A. M. (2013). Patterns of brain activation in foster children and nonmaltreated children during an inhibitory control task. *Development and Psychopathology*, 25(4 PART 1), 931-941.

Bucker, J., Kapczinski, F., Post, R., Cereser, K. M., Szobot, C., Yatham, L. N., Kauer-Sant'Anna, M. (2012). Cognitive impairment in school-aged children with early trauma. *Comprehensive Psychiatry*, 53(6), 758-764.

Burgess, P. (1997). Theory and methodology in executive function research. In P. Rabbitt (Ed.) *Methodology of frontal executive function*, p. 81-116. Hove, East Sussex: Psychology Press.

Burgess, P. W., Alderman, N., Evans, J., Emslie, H., & Wilson, B. A. (1998). The ecological validity of tests of executive function. *Journal of the International Neuropsychological Society*, 4(6), 547-558.
doi:<http://dx.doi.org/10.1017/S1355617798466037>

- Carlson, V., Cicchetti, D., Barnett, D., Braunwald, K. (1989).
Disorganized/disoriented attachment relationships in maltreated infants.
Developmental Psychology, 25(4), 525-531. doi: <http://dx.doi.org/10.1037/0012-1649.25.4.525>
- Chamberlain, P., Moreland, S., & Reid, K. (1992). Enhanced services and stipends for foster parents: Effects on retention rates and outcomes for children. *Child Welfare*, 81, 387–401.
- Cicchetti, D., Rogosch, F.A. & Toth, S.L. (2006). Fostering secure attachment in infants in maltreating families through preventive interventions. *Developmental Psychopathology*, 18(3), 623-649.
- Cipriano-Essel, E., Skowron, E., A., Stifter, C., A., & Teti, D., M. (2013).
Heterogeneity in maltreated and non-maltreated preschool children's inhibitory control: The interplay between parenting quality and child temperament. *Infant and Child Development*, 22(5), 501-522. doi:<http://dx.doi.org/10.1002/icd.1801>
- Cobb-Clark, D. A., Ryan, C. and Sartbayeva, A. (2012) Taking Chances: The Effect that Growing Up on Welfare Has on the Risky Behavior of Young People, *The Scandinavian Journal of Economics*, 114, 729–755. doi:10.1111/j.1467-9442.2012.01704.x
- Conti, G., Morris, S., Melnychuk, M. & Pizzo, E. (2017) [online] The economic costs of child maltreatment in the UK. London: NSPCC.
<https://www.nspcc.org.uk/globalassets/documents/research-reports/economic-cost-child-maltreatment-united-kingdom-preliminary-study.pdf>

Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159.

doi:<http://dx.doi.org/10.1037/0033-2909.112.1.155>

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Erlbaum: Hillsdale, NJ, USA.

Cole, S. A., & Eamon, M. K. (2007). Predictors of depressive symptoms among foster caregivers. *Child Abuse & Neglect*, 31, 295–310.

Cowell, R. A., Cicchetti, D., Rogosch, F. A., & Toth, S. L. (2015). Childhood maltreatment and its effect on neurocognitive functioning: Timing and chronicity matter. *Development and Psychopathology*, 27(2), 521-533.

doi:<http://dx.doi.org/10.1017/S0954579415000139>

Critical Appraisal Skills Programme (2017). CASP (Systematic Review Checklist. [online] Available at: <http://www.casp-uk.net>. Accessed: 11 May 2015.

Cyr , C., Euser, E.M., Bakermans-Kranenburg, M.J., Van Ijzendoorn, M.H. (2010). Attachment security and disorganization in maltreating and high-risk families: a series of meta-analyses. *Developmental Psychopathology*, 22(1), 87-108. doi: 10.1017/S0954579409990289.

DeBellis, M. D., Hooper, S. R., Spratt, E. G., & Woolley, D. P. (2009).

Neuropsychological findings in childhood neglect and their relationships to pediatric PTSD. *Journal of the International Neuropsychological Society*, 15(6), 868-878.

Delis, D.C., Kaplan, E., & Kramer, J.H. (2001). *Delis-Kaplan Executive Function System, Technical Manual (D-KEFS)*. San Antonio: The Psychological Corporation.

Deeks, J.J., Higgins, J.P.T., Altman, D.G. (editors). Chapter 9: Analysing data and undertaking meta-analyses. In: Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 (updated March 2011). The Cochrane Collaboration, 2011. Available from www.handbook.cochrane.org

DePrince, A. P., Weinzierl, K. M., & Combs, M. D. (2009). Executive function performance and trauma exposure in a community sample of children. *Child Abuse and Neglect*, 33(6), 353-361.

Diamond, A., & Lee, K. (2011). Interventions shown to aid executive function development in children 4 to 12 years old. *Science*, 333(6045), 959-964.
doi:<http://dx.doi.org/10.1126/science.1204529>

Dimigen, G., Del Priore, C., Butler, S., Evans, S., Ferguson, L. & Swan, M. (1999). Psychiatric disorder among children at time of entering local authority care: questionnaire survey. *British Medical Journal*, 319(7211), 675.

Dozier, M., Highley, E., Albus, K.E. & Nutter, A. (2002). Intervening with foster infants' caregiver: targeting three needs. *Infant Mental Health Journal*, 23(5), 541-554.

Enlow, M. (2012). Interpersonal trauma exposure and cognitive development in children to age 8 years: A longitudinal study. *Journal of Epidemiology and Community Health*, 66(11), 1005-1010.

Fang, X., Brown, D. S., Florence, C. S., & Mercy, J. A. (2012). The economic burden of child maltreatment in the united states and implications for prevention. Netherland: Elsevier Science; doi:[10.1016/j.chiabu.2011.10.006](https://doi.org/10.1016/j.chiabu.2011.10.006)

Farmer, E., Lipscombe, J. & Moyers, S. (2005). Foster carer strain and its impact on parenting and placement outcomes for adolescents. *British Journal of Social Work*, 35(2), 237-253.

Ford, T., Vostanis, P., Meltzer, H. & Goodman, R. (2007). Psychiatric disorder among British children looked after by local authorities: comparison with children living in private households. *British Journal of Psychiatry*, 190, 319-325.

Fox-Wasylyshyn, S. M. & El-Masri, M. M. (2005) Handling missing data in self-report measures. *Research in Nursing and Health*, 28, 488-495.

Friedman, N. P., Miyake, A., Young, S. E., DeFries, J. C., Corley, R. P., & Hewitt, J. K. (2008). Individual differences in executive functions are almost entirely genetic in origin. [Individual differences in executive functions are almost entirely genetic in origin.] *Journal of Experimental Psychology: General*, 137(2), 201.

Gioia, G.A., Isquith, P.K., Guy, S. & Kenworthy, L. (2000) Behavior Rating Inventory of Executive Functions. Lutz, FL: Psychological Assessment Resources.

Gioia, G.A., Isquith, P.K. (2004) Ecological assessment of executive function in traumatic brain injury. *Dev Neuropsychol.*, 25, 135–158.

Golding, K. & Picken, W. (2004). Group work for foster carers caring for children with complex problems. *Adoption & Fostering*, 28(1), 25-37

Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire (SDQ) *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 1337-1345.

Goodman, A. & Goodman, R. (2012). Strengths and Difficulties Questionnaire scores and mental health in looked after children. *British Journal of Psychiatry*, 200(5), 426-427.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: a research note. *Journal of Child Psychology and Psychiatry*, 38, 581-586.

Gramowski, B., Kools, S., Paul, S., Boyer, Ch. B., Monasterio, E., Robbins, N. (2009). Health risk behavior of youth in foster care. *Journal of child and adolescent psychiatric nursing*, 22 (2), 77-85. doi: 10.1111/j.1744-6171.2009.00176.x

Green, J. & Goldwyn, R. (2002). Annotation: attachment disorganisation and psychopathology: new findings in attachment research and their potential implications for developmental psychopathology in childhood. *Journal of Child Psychology and Psychiatry*, 43(7), 835-846.

Guttmann-Steinmetz, S. & Crowell, J.A. (2006). Attachment and externalizing disorders: a developmental psychopathology perspective. *Journal of the American Academy of Child and Adolescent Psychiatry*, 45(4), 440-451.

Guyer, A., Kaufman, J., Hodgdon, H., Masten, C., Jazbec, S., Pine, D., & Ernst, M. (2006). Behavioral alterations in reward system function: The role of childhood maltreatment and psychopathology. *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(9), 1059-1067.

Harris, L. S. (2011). Influence of maltreatment on executive functions that underlie problem solving. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 72(1-B), 578.

- Hart, H., & Rubia, K. (2012). Neuroimaging of child abuse: A critical review. *Frontiers in Human Neuroscience*, 6, Art 52-24.
doi:<http://dx.doi.org/10.3389/fnhum.2012.00052>
- Haskett, M.E., Ahern, L.S., Ward, C.S. & Allaire, J.C. (2006). Factor structure and validity of the Parenting Stress Index-Short Form. *Journal of Clinical Child and Adolescent Psychology* 35(2), 302-312.
- Heaton, R.K. (1981) Wisconsin card sorting test. Odessa, FL: Psychological Assessment Resources Inc.
- Hildyard, K. L., & Wolfe, D. A. (2002). Child neglect: Developmental issues and outcomes. *Child Abuse & Neglect*, 26(6-7), 679-695.
doi:<http://dx.doi.org/10.1016/S0145-2134%2802%2900341-1>
- Hill, E.L. (2004). Evaluating the theory of executive dysfunction in autism. *Developmental Review*, 24, 189-233.
- Hughes, C. & Graham, A. (2002). Measuring executive functions in childhood: Problems and Solutions. *Child and Adolescent Mental Health*, 7, 131-142.
- Johnston, C. & Mash, E.J. (1989). A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology*, 18, 167-175.
- Jurado, M. B., & Rosselli, M. (2007). The elusive nature of executive functions: A review of our current understanding. *Neuropsychology Review*, 17(3), 213-233.
doi:<http://dx.doi.org/10.1007/s11065-007-9040-z>

Kerr, L., & Cossar, J. (2014). Attachment Interventions with Foster and Adoptive Parents: A Systematic Review. *Child Abuse Review*, 23(6), 426-439. doi: 10.1002/car.2313

KirkeSmith, M., Henry, L., & Messer, D. (2014). Executive functioning: Developmental consequences on adolescents with histories of maltreatment. *British Journal of Developmental Psychology*, 32(3), 305-319.

KirkeSmith, M., Henry, L., & Messer, D. (2012). Childhood maltreatment and executive functioning during adolescence. *Adolescent Psychiatry*, 2(3), 211-220. doi:<http://dx.doi.org/10.2174/2210676611202030211>

Kolb, B., Mychasiuk, R., Muhammad, A., Li, Y., Frost, D. O., & Gibb, R. (2012). Experience and the developing prefrontal cortex. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, 109(2), 17186-17193. doi:<http://dx.doi.org/10.1073/pnas.1121251109>

Kodituwakku, P.W., Kalberg, W. & May, P.A. (2001). The Effects of Prenatal Alcohol Exposure on Executive Functioning. *Alcohol Research and Health*, 25(3), 192-198.

Korkman, M., Kirk, U. & Kemp, S. (2007) *A Developmental Neuropsychological Assessment (Second Edition)*. San Antonio, TX: Harcourt Assessment.

Landis, JR & Koch, GG (1977). The measurement of observer agreement for categorical data. *Biometrics*, 3: 159-174.

Lanier, P., Kohl, P. L., Raghavan, R., & Auslander, W. (2015). A preliminary examination of child well-being of physically abused and neglected children

compared to a normative pediatric population. *Child Maltreatment*, 20(1), 72-79. doi:
<http://dx.doi.org/10.1177/1077559514557517>

Lansdown, R., Burnell, A., & Allen, M. (2007). Is it that they won't do it, or is it that they can't? Executive functioning and children who have been fostered and adopted. *Adoption and Fostering*, 31(2), 44-53.

Lau, A. S., Leeb, R. T., English, D., Graham, J. C., Briggs, E. C., Brody, K. E., & Marshall, J. M. (2005). What's in a name? A comparison of methods for classifying predominant type of maltreatment. *Child Abuse & Neglect*, 29(5), 533-551.

Laybourne, G, Andersen, J, & Sands, J (2008). Fostering attachments in looked after children: Further insight into the group-based programme for foster carers. *Adoption & Fostering*, 32(4): 64-76.

Lovibond, S.H. & Lovibond, P.F. (1995). *Manual for the Depression Anxiety Stress Scales* (Second Ed.) Sydney: Psychology Foundation. ISBN 7334-1423-0.

Maguire, S. A., Williams, B., Naughton, A. M., Cowley, L. E., Tempest, V., Mann, M. K., Kemp, A. M. (2015). A systematic review of the emotional, behavioural and cognitive features exhibited by school-aged children experiencing neglect or emotional abuse. United Kingdom: Wiley-Blackwell Publishing Ltd.
doi:10.1111/cch.12227

Manly, J. T., Kim, J. E., Rogosch, F. A., & Cicchetti, D. (2001). Dimensions of child maltreatment and children's adjustment: Contributions of developmental timing and subtype. *Development and Psychopathology*, 13(4), 759-782.

Manly, J. T., Lynch, M., Oshri, A., Herzog, M., & Wortel, S. N. (2013). The impact of neglect on initial adaptation to school. *Child Maltreatment*, 18(3), 155-170.

doi:<http://dx.doi.org/10.1177/1077559513496144>

McCann, J.B., James, A., Wilson, S., Dunn, G. (1996). Prevalence of psychiatric disorders in young people in the care system. *British Medical Journal*, 313, 1529-30.

McCrory, E., De Brito, S. A., & Viding, E. (2010). Research review: The neurobiology and genetics of maltreatment and adversity. *Journal of Child Psychology and Psychiatry*, 51(10), 1079-1095. doi:<http://dx.doi.org/10.1111/j.1469-7610.2010.02271.x>

McGloin, J. M., & Widom, C. S. (2001). Resilience among abused and neglected children grown up. *Development and Psychopathology*, 13(04), 1021-1038.

Meltzer, H., Corbin, T., Gatward, R., Goodman, R. and Ford, T. (2003). The Mental Health of Young People Looked After by Local Authorities in England: A survey carried out by the social survey division of ONS on behalf of the Department of Health. London: The Stationery Office.

Merz, E. C., McCall, R. B., & Groza, V. (2013). Parent-reported executive functioning in postinstitutionalized children: A follow-up study. *Journal of Clinical Child and Adolescent Psychology*, 42(5), 726-733.

doi:<http://dx.doi.org/10.1080/15374416.2013.764826>

Mezzacappa, E. (2004). Alerting, orienting, and executive attention: Developmental properties and sociodemographic correlates in an epidemiological sample of young, urban children. *Child Development*, 75(5), 1373-1386. doi:10.1111/j.1467-

8624.2004.00746.x

- Mills, R., Alati, R., O'Callaghan, M., Najman, J. M., Williams, G. M., Bor, W., & Strathearn, L. (2011). Child abuse and neglect and cognitive function at 14 years of age: Findings from a birth cohort. *Pediatrics*, 127(1):4-10. doi: <http://dx.doi.org/10.1542/peds.2009-3479>
- Minnis, H., Reekie, J., Young, D., O'Connor, T., Ronald, A., Gray, A. & Plomin, R. (2007). Genetic, environmental and gender influences on attachment disorder behaviours. *British Journal of Psychiatry*, 190, 490-495.
- Minnis, H., Macmillan, S., Pritchett, R., Young, D., Wallace, B., Butcher, J., Sim, F., Baynham, K., Davidson, C. & Gilberg, C. (2013). Prevalence of reactive attachment disorder in a deprived population. *British Journal of Psychiatry*, 202(5), 342-346.
- Minty, B (1999) Annotation: Outcomes in Long-term Foster Family care. *Journal of Child Psychology and Psychiatry*, 40(7): 991-999.
- Mischel, W., Shoda, Y., & Peake, P. K. (1988). The nature of adolescent competencies predicted by preschool delay of gratification. *Journal of Personality and Social Psychology*, 54(4), 687-696. doi:<http://dx.doi.org/10.1037/0022-3514.54.4.687>
- Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex “Frontal lobe” tasks: A latent variable analysis. *Cognitive Psychology*, 41(1), 49-100. doi:<http://dx.doi.org/10.1006/cogp.1999.0734>
- Morgan, K., & Baron, R. (2011). Challenging behaviour in looked after young people, feelings of parental self-efficacy and psychological wellbeing in foster carers. *Adoption and Fostering*, 35(1), 18-32.

Mothes, L., Kristensen, C. H., Grassi Oliveira, R., Fonseca, R. P., de Lima Argimon, I. I., & Irigaray, T. Q. (2015). Childhood maltreatment and executive functions in adolescents. *Child and Adolescent Mental Health*, 20(1), 56-62.

Mueller, S. C., Maheu, F. S., Dozier, M., Peloso, E., Mandell, D., Leibenluft, E., & Ernst, M. (2010). Early-life stress is associated with impairment in cognitive control in adolescence: An fMRI study. *Neuropsychologia*, 48(10), 3037–3044.

Nadeau, M., & Nolin, P. (2013). Attentional and executive functions in neglected children. *Journal of Child & Adolescent Trauma*, 6(1), 1-10.

National Institute for Health and Clinical Excellence (NICE) (2013). *Nice Clinical Guideline PH28: Looked after children and young people*. NICE: London.

National Society for the Prevention of Cruelty to Children (2017). *Child Protection Register Statistics*. [online.] Knowledge and Information Services.

<https://www.nspcc.org.uk/globalassets/documents/statistics-and-information/child-protection-register-statistics-england.pdf>

Nolin, P., & Ethier, L. (2007). Using neuropsychological profiles to classify neglected children with or without physical abuse. *Child Abuse and Neglect*, 31(6), 631-643.

Norman, D., & Shallice, T. (1986). Attention to action: willed and automatic control of behaviour (pp. 1-18). In R.J. Davidson & G.E. Schwartz & D. Shapiro (Eds.) *Consciousness and Self-Regulation. Advances in Research, Vol IV*. New York, US: Plenum Press.

Ohan, J.L., Leung, D.W. & Johnston, C. (2000). The Parenting Sense of Competence Scale: Evidence of a Stable Factor Structure and Validity. *Canadian Journal of Behavioural Science*, 32(4), 251-261.

Oosterman, M., Schuengel, C., Wim Slot, N., Bullens, R.A.R. & Doreleijers, T.A.H. (2007). Disruptions in foster care: a review and meta-analysis. *Children and Youth Services Review*, 29, 53-76.

Pears, K., & Fisher, P. A. (2005). Developmental, cognitive, and neuropsychological functioning in preschool-aged foster children: Associations with prior maltreatment and placement history. *Journal of Developmental and Behavioral Pediatrics*, 26(2), 112-122.

Pears, K. C., Kim, H. K., & Fisher, P. A. (2008). Psychosocial and cognitive functioning of children with specific profiles of maltreatment. *Child Abuse & Neglect*, 32(10), 958-971. doi:<http://dx.doi.org/10.1016/j.chiabu.2007.12.009>

Pears, K. C., Fisher, P. A., Bruce, J., Kim, H. K., Yoerger, K. (2010). Early Elementary School Adjustment of Maltreated Children in Foster Care: The Roles of Inhibitory Control and Caregiver Involvement. *Child Development*, 81(5), 1550-1564. doi: <http://dx.doi.org/10.1111/j.1467-8624.2010.01491.x>

Pecora, P. J., Kessler, R. K., Williams, J., O'Brien, K., Downs, A. C., English, D., White, C.R., Hiripi, E., Wiggins, T. & Holmes, K. (2005). *Improving family foster care: Findings from the Northwest Foster Care Alumni Study*. Seattle, WA: Casey Family Programs. www.casey.org

Perez, C.M. & Widom, C.S. (1994). Childhood victimization and long-term intellectual and academic outcomes. *Child Abuse and Neglect*, 18(8), 617-633.

- Perna, R. B., & Kiefner, M. (2013). Long-term cognitive sequelae: Abused children without PTSD. *Applied Neuropsychology: Child*, 2(1), 1-5.
- Pianta, R.C. (1992). Child Parent Relationship Scale. Charlottesville, Virginia: Curry School of Education, University of Virginia.
- Robbins, T., James, M., Owen, A., Sahakian, B., McInnes, L., & Rabbitt, P. (1997). A neural systems approach to the cognitive psychology of ageing using the CANTAB battery. In P. Rabbitt (Ed.) *Methodology of frontal executive function*, p. 81-116. Hove, East Sussex: Psychology Press.
- Rushton, J. P., Brainerd, C. J., & Pressley, M. (1983). Behavioral development and construct validity: The principle of aggregation. *Psychological Bulletin*, 94(1), 18.
- Sawyer, M. G., Baghurst, P. & Clark, J. (1992). Differences between reports from children, parents and teachers: implications for epidemiological studies. *Australian and New Zealand Journal of Psychiatry*, 26, 652–660.
- Schofield, G. & Beek, M. (2006). Attachment handbook for foster care and adoption. British Association for Adoption and Fostering, London.
- Schore, A.N. (2001). The effects of early relational trauma on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal*, 22(1-2), 201-269.
- Scottish Intercollegiate Network Guidelines (2011). *Methodology Checklist 3: Cohort studies*. Edinburgh: Scottish Intercollegiate Network Guidelines.
<http://www.sign.ac.uk/guidelines/fulltext/50/checklist3.html>

Shallice, T. (1982). Philosophical Transactions of the Royal Society of London, 298, 199-209.

Shallice, T. & Burgess, P. (1991). Deficits in strategy application following frontal lobe damage in man. *Brain*, 114, 727-741.

Shoda, Y., Mischel, W., & Peake, P. K. (1990). Predicting adolescent cognitive and self-regulatory competencies from preschool delay of gratification: Identifying diagnostic conditions. *Developmental Psychology*, 26(6), 978-986.
doi:<http://dx.doi.org/10.1037/0012-1649.26.6.978>

Skowron, E.A., Cipriano-Essel, E., Gatzke-Kopp, L.M., Teti, D.M., Ammerman, R.T. (2014). Early adversity, RSA, and inhibitory control: evidence of children's neurobiological sensitivity to social context. *Dev Psychobiology*; 56: 964–78. doi: 10.1002/dev.21175

Smyke, A.T., Zeanah, C.H., Gleason, M.M., Drury, S.S., Fox, N.A., Nelson, C.A., Guthrie, D. (2012). A randomized Controlled Trial Comparing Foster Care and institutional Care for Children with Signs of reactive Attachment Disorder. *American Journal of Psychiatry*, 169, 508–514. doi.org/10.1176/appi.ajp.2011.11050748

Spann, M. N., Mayes, L. C., Kalmar, J. H., Guiney, J., Womer, F. Y., Pittman, B., Blumberg, H. P. (2012). Childhood abuse and neglect and cognitive flexibility in adolescents. *Child Neuropsychology*, 18(2), 182-189.

Springer, K. W., Sheridan, J., Kuo, D., & Carnes, M. (2007). Long-term physical and mental health consequences of childhood physical abuse: Results from a large population-based sample of men and women. *Child Abuse & Neglect*, 31(5), 517-530. doi:<http://dx.doi.org/10.1016/j.chiabu.2007.01.003>

St ClairThompson, H. L., & Gathercole, S. E. (2006). Executive functions and achievements in school: Shifting, updating, inhibition, and working memory.

Quarterly Journal of Experimental Psychology, 59(4), 745-759.

doi:<http://dx.doi.org/10.1080/17470210500162854>

Stroop, J.R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, 18(6), 643–662. doi:10.1037/h0054651.

Tarren-Sweeney, M. (2007). The Assessment Checklist for Children - ACC: A behavioral rating scale for children in foster, kinship and residential care. *Children and Youth Services Review*, 29(5), 672-691.

Tarren-Sweeney, M. (2013a). The Brief Assessment Checklists (BAC-C, BAC-A): Mental health screening measures for school-aged children and adolescents in foster, kinship, residential and adoptive care. *Children and Youth Services Review*, 35(5), 771-779.

Tarren-Sweeney, M. (2013b). An investigation of complex attachment and trauma related symptomatology among children in foster, kinship and residential care. *Child Psychiatry and Human Development*, 44(6), 727-741.

Tarullo, A. R., & Gunnar, M. R. (2006). Child maltreatment and the developing HPA axis. *Hormones and Behavior*, 50(Translational Topics in Behavioral Neuroendocrinology.), 632-639. doi:<http://dx.doi.org/10.1016/j.yhbeh.2006.06.010>

Thrall, E. E., Hall, C. W., Golden, J. A., & Sheaffer, B. L. (2009). Screening measures for children and adolescents with reactive attachment disorder. *Behavioral Development Bulletin*, 15(1), 4-10. <http://dx.doi.org/10.1037/h0100508>

Tottenham, N. (2011). Elevated amygdala response to faces following early deprivation. *Developmental Science*, 14(2), 190-204.

Twardosz, S., & Lutzker, J. R. (2010). Child maltreatment and the developing brain: A review of neuroscience perspectives. *Aggression and Violent Behavior*, 15(1), 59-68.

US Department of Health and Human Services (USDHHS), Administration for Children and Families, Children's Bureau. (2015). *Child Maltreatment 2015*. Available at: <https://www.acf.hhs.gov/cb/resource/child-maltreatment-2015>. Accessed November 30, 2016.

Van den Dries, L., Juffer, F., van IJzendoorn, M. H., Bakermans-Kranenburg, M.J. (2009). Fostering security? A meta-analysis of attachment in adopted children. *Children and Youth Services Review*, 31(3), 410-421.

van IJzendoorn, M. H., Palacios, J., Sonuga-Barke, E. J. S., Gunnar, M. R., Vorria, P., McCall, R. B., Juffer, F. (2011). I. Children in institutional care: Delayed Development and Resilience. *Monographs of the Society for Research in Child Development*, 76(4), 8-30. doi:10.1111/j.1540-5834.2011.00626.x

Vasilevski, V., & Tucker, A. (2016). Wide-ranging cognitive deficits in adolescents following early life maltreatment. *Neuropsychology*, 30(2), 239-246. doi: <http://dx.doi.org/10.1037/neu0000215>

Wager, T. D., & Smith, E. E. (2003). Neuroimaging studies of working memory: A meta-analysis. *Cognitive, Affective & Behavioral Neuroscience*, 3(4), 255-274. doi:<http://dx.doi.org/10.3758/CABN.3.4.255>

- Ward, H., Holmes, L., Soper, J. & Olsen, R. (2004). Costs and Consequences of Different Types of Child Care Provision, Loughborough: Loughborough University, Centre for Child and Family Research.
- Wassell, S. (2011). Evaluation of an attachment theory based parenting group for Foster carers and adoptive parents. Unpublished doctoral thesis, University of Birmingham.
- Whenan, R., Oxlad, M. & Lushington, K. (2009). Factors associated with foster carer well-being, satisfaction and intention to continue providing out of home care. *Children and Youth Services Review*, 31, 752-760.
- Weller, J. A., & Fisher, P. A. (2013). Decision-making deficits among maltreated children. US: Sage Publications. doi:10.1177/1077559512467846
- Weller, J. A., Leve, L. D., Kim, H. K., Bhimji, J., & Fisher, P. A. (2015). Plasticity of risky decision making among maltreated adolescents: Evidence from a randomized controlled trial. United Kingdom: Cambridge University Press. doi:10.1017/S0954579415000140
- Zeanah, C.H., Berlin, L.J. & Boris, N.W. (2011). Practitioner review: clinical applications of attachment theory and research for infants and young children. *Journal of Child Psychology and Psychiatry*, 52(8), 819-833
- Zeanah, C. H., Nelson, C. A., Fox, N. A., Smyke, A. T., Marshall, P., Parker, S. W., & Koga, S. (2003). Designing research to study the effects of institutionalization on brain and behavioral development: The Bucharest early intervention project. *Development and Psychopathology*, 15(4), 885-907. doi:http://dx.doi.org/10.1017/S0954579403000452

Zelazo, P. D., Carter, A., Reznick, J. S., & Frye, D. (1997). Early development of executive function: A problem-solving framework. *Review of General Psychology*, 1(2), 198-226. doi:<http://dx.doi.org/10.1037/1089-2680.1.2.198>

Zelazo, P. D., & Müller, U. (2002). Executive function in typical and atypical development. In *Blackwell Handbook of Childhood Cognitive Development* (Ed U. Goswami), Blackwell Publishers Ltd: MA, USA. doi: 10.1002/9780470996652.ch20

Appendices

Appendix 1	Author guidelines for Child Neuropsychology
Appendix 2	Systematic review excluded studies
Appendix 3	Systematic review quality rating criteria
Appendix 4	Summary of Quality Ratings
Appendix 5	Author guidelines for Child: Care Health and Development
Appendix 6	Participant information sheet
Appendix 7	Consent form
Appendix 8	Teacher information sheet
Appendix 9	Strengths and Difficulties Questionnaire
Appendix 10	Relationship Problems Questionnaire
Appendix 11	Brief Assessment Checklist for Children
Appendix 12	Child-Parent Relationship Scale
Appendix 13	Parenting Sense of Competence Scale
Appendix 14	Parenting Stress Index – Short Form
Appendix 15	Depression Anxiety and Stress Scales-21
Appendix 16	Demographic information sheet
Appendix 17	University of Edinburgh Research Ethics Application form
Appendix 18	Ethical approval - University of Edinburgh School of Health in Social Science
Appendix 19	Ethical Approval - Social work departments
Appendix 20	Thesis proposal form
Appendix 21	Data Exploration - missing data
Appendix 22	Data Exploration - assessment of possible covariate

Appendix 1: Author guidelines for Child Neuropsychology

About the journal

Child Neuropsychology is an international, peer reviewed journal, publishing high-quality, original research. Please see the journal's Aims & Scope for information about its focus and peer-review policy.

Please note that this journal only publishes manuscripts in English.

This journal accepts the following article types: Regular (Original) Articles, Brief Reports, and topical Review Articles, as well as specific Test or Book Reviews.

Questions for the Editor may be addressed to Michael Westerveld. Questions regarding Book, Test or Topical Reviews may be addressed to Jacobus Donders.

Peer review

Taylor & Francis is committed to peer-review integrity and upholding the highest standards of review. Once your paper has been assessed for suitability by the editor, it will then be double blind peer-reviewed by independent, anonymous expert referees. Find out more about what to expect during peer review and read our guidance on publishing ethics.

Preparing your paper

All authors submitting to medicine, biomedicine, health sciences, allied and public health journals should conform to the Uniform Requirements for Manuscripts Submitted to Biomedical Journals, prepared by the International Committee of Medical Journal Editors (ICMJE).

We also refer authors to the community standards explicit in the American Psychological Association's (APA) Ethical Principles of Psychologists and Code of Conduct.

Structure

Your paper should be compiled in the following order: title page (including Acknowledgements as well as Funding and grant-awarding bodies); abstract; keywords; main text; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figure caption(s) (as a list).

Work with a very narrow focus or that otherwise does not warrant a full article can be considered for a Brief Report. In a Brief Report, there should be no subsections in the Method, and the Results and Discussion should be combined.

Word limits

Please include a word count for your paper.

There are no word limits for articles in this journal.

A typical Brief Report for this journal should be no more than 2000 words; this limit does not include two tables or figures.

Style guidelines

Please refer to these style guidelines when preparing your paper, rather than any published articles or a sample copy.

Please use American spelling style consistently throughout your manuscript.

Please use double quotation marks, except where "a quotation is 'within' a quotation". Please note that long quotations should be indented without quotation marks.

The style and format of your paper should conform to the specifications given in the *Publication Manual of the American Psychological Association* (6th ed.).

Abstracts of less than 250 words are required for all manuscripts submitted. Avoid abbreviations, diagrams, and references to the text in the abstract.

A shortened version of the title suitable for the running head, not exceeding 40 character spaces, should be provided for all manuscripts.

Section headings should be concise and should not contain numbering.

Footnotes should not be used unless absolutely necessary. Essential footnotes should be indicated by superscript figures in the text and collected on a separate page at the end of your paper.

Results of statistical tests should be given in the following form: "... results showed an effect of group, $F(2, 21) = 13.74$, $MSE = 451.98$, $p < .001$, but there was no effect of repeated trials, $F(5, 105) = 1.44$, $MSE = 17.70$, and no interaction, $F(10, 105) = 1.34$, $MSE = 17.70$." Other tests should be reported in a similar manner to the above example of an F -ratio. For a fuller explanation of statistical presentation, see the *APA Publication Manual* (6th ed.).

Abbreviations that are specific to a particular manuscript or to a very specific area of research should be avoided, and authors will be asked to spell out in full any such abbreviations throughout the text. Standard abbreviations such as RT for reaction time, SOA for stimulus onset asynchrony or other standard abbreviations that will be readily understood by readers of the journal are acceptable. Experimental conditions should be named in full, except in tables and figures.

Formatting and templates

Papers may be submitted in any standard format, including Word and LaTeX. Figures should be saved separately from the text. To assist you in preparing your paper, we provide formatting templates.

A LaTeX template is available for this journal.

Word templates are available for this journal. Please save the template to your hard drive, ready for use.

If you are not able to use the templates via the links (or if you have any other template queries) please contact authortemplate@tandf.co.uk

All parts of the manuscript should be double-spaced, with margins of at least one inch on all sides. Number manuscript pages consecutively throughout the paper.

If any assistance is needed with uploading your files to the peer review system, please feel free to email the Editorial Assistant.

References

Please use this reference style guide when preparing your paper. An EndNote output style is also available to assist you.

Checklist: what to include

1. Author details. Please ensure everyone meeting the International Committee of Medical Journal Editors (ICMJE) requirements for authorship is included as an author of your paper. Please include all authors' full names, affiliations, postal addresses, telephone numbers and email addresses on the title page. Where available, please also include ORCID identifiers and social media handles (Facebook, Twitter or LinkedIn). One author will need to be identified as the corresponding author, with their email address normally displayed in the article PDF (depending on the journal) and the online article. Authors' affiliations are the affiliations where the research was conducted. If any of the named co-authors moves affiliation during the peer-review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after your paper is accepted. Read more on authorship.
2. A non-structured abstract of no more than 250 words. Read tips on writing your abstract.
3. You can opt to include a video abstract with your article. Find out how these can help your work reach a wider audience, and what to think about when filming.
4. Up to five keywords. Read making your article more discoverable, including information on choosing a title and search engine optimization.
5. Funding details. Please supply all details required by your funding and grant-awarding bodies as follows:
For single agency grants: This work was supported by the [Funding Agency] under Grant [number xxxx].
For multiple agency grants: This work was supported by the [funding Agency 1]; under Grant [number xxxx]; [Funding Agency 2] under Grant [number xxxx]; and [Funding Agency 3] under Grant [number xxxx].
6. Disclosure statement. This is to acknowledge any financial interest or benefit that has arisen from the direct applications of your research. Further guidance on what is a conflict of interest and how to disclose it.
7. Geolocation information. Submitting a geolocation information section, as a separate paragraph before your acknowledgements, means we can index your paper's study area accurately in JournalMap's geographic literature database and make your article more discoverable to others.
8. Supplemental online material. Supplemental material can be a video, dataset, fileset, sound file or anything which supports (and is pertinent to) your paper. We publish supplemental material online via Figshare. Find out more about supplemental material and how to submit it with your article.
9. Figures. Figures should be high quality (1200 dpi for line art, 600 dpi for grayscale and 300 dpi for color, at the correct size). Figures should be saved as TIFF, PostScript or EPS files. More information on how to prepare artwork.
10. Tables. Tables should present new information rather than duplicating what is in the text. Readers should be able to interpret the table without reference to the text. Please supply editable files.
11. Equations. If you are submitting your manuscript as a Word document, please ensure that equations are editable. More information about mathematical symbols and equations.
12. Units. Please use SI units (non-italicized).

Using third-party material in your paper

You must obtain the necessary permission to reuse third-party material in your article. The use of short extracts of text and some other types of material is usually permitted, on a limited basis, for the purposes of criticism and review without securing formal permission. If you wish to include any material in your paper for which you do not hold copyright, and which is not covered by this informal agreement, you will need to obtain written permission from the

copyright owner prior to submission. More information on requesting permission to reproduce work(s) under copyright.

Disclosure statement

Please include a disclosure of interest statement, using the subheading "Disclosure of interest." If you have no interests to declare, please state this (suggested wording: *The authors report no conflicts of interest*). For all NIH/Wellcome-funded papers, the grant number(s) must be included in the disclosure of interest statement. Read more on declaring conflicts of interest.

Clinical Trials Registry

In order to be published in a Taylor & Francis journal, all clinical trials must have been registered in a public repository at the beginning of the research process (prior to patient enrolment). Trial registration numbers should be included in the abstract, with full details in the methods section. The registry should be publicly accessible (at no charge), open to all prospective registrants, and managed by a not-for-profit organization. For a list of registries that meet these requirements, please visit the WHO International Clinical Trials Registry Platform (ICTRP). The registration of all clinical trials facilitates the sharing of information among clinicians, researchers, and patients, enhances public confidence in research, and is in accordance with the ICMJE guidelines.

Complying with ethics of experimentation

Please ensure that all research reported in submitted papers has been conducted in an ethical and responsible manner, and is in full compliance with all relevant codes of experimentation and legislation. All papers which report *in vivo* experiments or clinical trials on humans or animals must include a written statement in the Methods section. This should explain that all work was conducted with the formal approval of the local human subject or animal care committees (institutional and national), and that clinical trials have been registered as legislation requires. Authors who do not have formal ethics review committees should include a statement that their study follows the principles of the Declaration of Helsinki.

Consent

All authors are required to follow the ICMJE requirements on privacy and informed consent from patients and study participants. Please confirm that any patient, service user, or participant (or that person's parent or legal guardian) in any research, experiment, or clinical trial described in your paper has given written consent to the inclusion of material pertaining to themselves, that they acknowledge that they cannot be identified via the paper; and that you have fully anonymized them. Where someone is deceased, please ensure you have written consent from the family or estate. Authors may use this Patient Consent Form, which should be completed, saved, and sent to the journal if requested.

Health and safety

Please confirm that all mandatory laboratory health and safety procedures have been complied with in the course of conducting any experimental work reported in your paper. Please ensure your paper contains all appropriate warnings on any hazards that may be involved in carrying out the experiments or procedures you have described, or that may be involved in instructions, materials, or formulae.

Please include all relevant safety precautions; and cite any accepted standard or code of practice. Authors working in animal science may find it useful to consult the International

Association of Veterinary Editors' Consensus Author Guidelines on Animal Ethics and Welfare and Guidelines for the Treatment of Animals in Behavioural Research and Teaching. When a product has not yet been approved by an appropriate regulatory body for the use described in your paper, please specify this, or that the product is still investigational.

Submitting your paper

This journal uses ScholarOne Manuscripts to manage the peer-review process. If you haven't submitted a paper to this journal before, you will need to create an account in the submission centre. Please read the guidelines above and then submit your paper in the relevant author centre where you will find user guides and a helpdesk.

If you are submitting in LaTeX, please convert the files to PDF beforehand (you may also need to upload or send your LaTeX source files with the PDF).

Please note that *Child Neuropsychology* uses Crossref™ to screen papers for unoriginal material. By submitting your paper to *Child Neuropsychology* you are agreeing to originality checks during the peer-review and production processes.

On acceptance, we recommend that you keep a copy of your Accepted Manuscript. Find out more about sharing your work.

Publication charges

There are no submission fees or page charges for this journal.

Color figures will be reproduced in color in your online article free of charge. If it is necessary for the figures to be reproduced in color in the print version, a charge will apply.

Charges for color figures in print are £250 per figure (\$395 US Dollars; \$385 Australian Dollars; €315). For more than 4 color figures, figures 5 and above will be charged at £50 per figure (\$80 US Dollars; \$75 Australian Dollars; €63). Depending on your location, these charges may be subject to local taxes.

Copyright options

Copyright allows you to protect your original material, and stop others from using your work without your permission. Taylor & Francis offers a number of different license and reuse options, including Creative Commons licenses when publishing open access. Read more on publishing agreements.

Complying with funding agencies

We will deposit all National Institutes of Health or Wellcome Trust-funded papers into PubMedCentral on behalf of authors, meeting the requirements of their respective open access (OA) policies. If this applies to you, please tell our production team when you receive your article proofs, so we can do this for you. Check funders' OA policy mandates here. Find out more about sharing your work.

Open access

This journal gives authors the option to publish open access via our Open Select publishing program, making it free to access online immediately on publication. Many funders mandate publishing your research open access; you can check open access funder policies and mandates here.

Taylor & Francis Open Select gives you, your institution or funder the option of paying an article publishing charge (APC) to make an article open access. Please contact openaccess@tandf.co.uk if you would like to find out more, or go to our Author Services website.

For more information on license options, embargo periods and APCs for this journal please search for the journal in our journal list.

My Authored Works

On publication, you will be able to view, download and check your article's metrics (downloads, citations and Altmeter data) via My Authored Works on Taylor & Francis Online. This is where you can access every article you have published with us, as well as your free eprints link, so you can quickly and easily share your work with friends and colleagues.

We are committed to promoting and increasing the visibility of your article. Here are some tips and ideas on how you can work with us to promote your research.

Article reprints

You will be sent a link to order article reprints via your account in our production system. For enquiries about reprints, please contact the Taylor & Francis Author Services team at reprints@tandf.co.uk. You can also order print copies of the journal issue in which your article appears.

Queries

Should you have any queries, please visit our Author Services website or contact us at authorqueries@tandf.co.uk.

Updated November 2016

Appendix 2: Studies excluded from Systematic Review

Twelve full text articles excluded as below:

1. Clinical samples:

Beers, S. R., & De Bellis, M. D. (2002). Neuropsychological function in children with maltreatment-related posttraumatic stress disorder. *American Journal of Psychiatry*, 159(3), 483-486.

De Bellis, M.D. & Hooper, S.R. (2012). Neural Substrates for Processing Task-Irrelevant Emotional Distracters in Maltreated Adolescents with Depressive Disorders: A Pilot Study. *J Trauma Stress*, 25(2), 198–202.

Carrion, V.G., Garrett, A., Menon, V., Weems, C.F., Reiss, A.L. (2008). Posttraumatic Stress Symptoms and Brain Function during a Response Inhibition Task: an fMRI study in Youth. *Depression and Anxiety*, 25, 514-526.

Kavanaugh, B., Holler, K., & Selke, G. (2015). A neuropsychological profile of childhood maltreatment within an adolescent inpatient sample. *Applied Neuropsychology: Child*, 4(1), 9-19.

Palmer, L.K. (1996). Neuropsychological sequelae in psychologically traumatized children. *Dissertation Abstracts International: Section B: The Sciences and Engineering*. 56(12-B).

Perna, R. B., & Kiefner, M. (2013). Long-term cognitive sequelae: Abused children without PTSD. *Applied Neuropsychology: Child*, 2(1), 1-5.

2. No comparison group data for EF behavioural measures:

Colvert, E., Rutter, M., Kreppner, J., Beckett, C., Castle, J., Groothues, C., Hawkins, A., Stevens, S. & Sonuga-Barke, E. (2008). Do theory of mind and executive function deficits underlie the adverse outcomes associated with profound early deprivation?: Findings from the English and Romanian adoptees study. *Journal of Abnormal Child Psychology*, 36(7), 1057-1068.

3. Not all participants maltreated:

Mueller, S.C., Hardin, M.G., Korelitz, K., Daniele, T., Bemis, J., Dozier, M., Peloso, E., Maheu, F.S., Pine, D.S. & Ernst, M. (2012). Incentive effect on inhibitory control in adolescents with early-life stress: An antisaccade study. *Child Abuse & Neglect*, 36(3), 217-225.

4. Not EF measure:

Crozier, J.C., Wang, L., Huettel, S.A. & DeBellis, M.D. (2014). Neural correlates of cognitive and affective processing in maltreated youth with posttraumatic stress symptoms: does gender matter? *Dev Psychopathol.*, 26(2), 491-513.

Nolin, P. (2009). Neuropsychological assessment of children experiencing abuse. [French]. *Approche Neuropsychologique des Apprentissages chez l'Enfant*, 21(1[101]), 45-51.

5. Same sample and study:

Kirke-Smith, M., Henry, L.A. & Messer, D. (2015). The effect of maltreatment type on adolescent executive functioning and inner speech. *Infant and Child Development*, 25(6) 516-532.

6. Intelligence (IQ) not assessed or not controlled for in analyses:

Bruce, J., Fisher, P. A., Graham, A. M., Moore, W. E., Peake, S. J., & Mannering, A. M. (2013). Patterns of brain activation in foster children and nonmaltreated children during an inhibitory control task. *Development and Psychopathology*, 25(4 PART 1), 931-941.

Bruce, J., McDermott, J. M., Fisher, P. A., & Fox, N. A. (2009). Using behavioral and electrophysiological measures to assess the effects of a preventive intervention: A preliminary study with preschool-aged foster children. *Prevention Science*, 10(2), 129-140.

DeBellis, M. D., Woolley, D. P., & Hooper, S. R. (2013). Neuropsychological findings in pediatric maltreatment: Relationship of PTSD, dissociative symptoms,

and abuse/neglect indices to neurocognitive outcomes. *Child Maltreatment*, 18(3), 171-183.

Mueller, S. C., Maheu, F. S., Dozier, M., Peloso, E., Mandell, D., Leibenluft, E., & Ernst, M. (2010). Early-life stress is associated with impairment in cognitive control in adolescence: An fMRI study. *Neuropsychologia*, 48(10), 3037–3044.

Nolin, P., & Ethier, L. (2007). Using neuropsychological profiles to classify neglected children with or without physical abuse. *Child Abuse and Neglect*, 31(6), 631-643.

Pears, K., & Fisher, P. A. (2005). Developmental, cognitive, and neuropsychological functioning in preschool-aged foster children: Associations with prior maltreatment and placement history. *Journal of Developmental and Behavioral Pediatrics*, 26(2), 112-122.

Quamma, J. P. (1997). Executive function and social problem-solving in maltreated and non-maltreated preschool children (Ph.D.). Available from ProQuest Dissertations & Theses Global. (1997-95024-150).

Appendix 3: Systematic review quality criteria

Reliability and validity of EF measures used	Three or more standardised measures from a test battery (CANTAB, D-KEFS, NEPSY) used, all of which have adequate reliability scores ($\alpha > 0.4$)	Fully addressed (2)
	<i>OR for studies explicitly only looking at one aspect of EF:</i> standardised measures from a test battery (CANTAB, D-KEFS, NEPSY) using more than one measure of EF component in question (e.g. inhibitory control), all of which have adequate reliability scores ($\alpha > 0.4$) ²	
	Up to two standardised measures from a test battery (CANTAB, D-KEFS, NEPSY) used, all of which have adequate reliability scores ($\alpha > 0.4$) <i>OR for studies explicitly only looking at one aspect of EF</i> only one measure of EF component in question with adequate reliability scores ($\alpha > 0.4$)	Partially addressed (1)
	Only non-standardised measures used with low reliability (< 0.40) or no available reliability values	Not addressed (0)

² Unless participants under 6 years of age were included in study for which standardised measures are not available

Matching of comparison group demographics	The two groups being studied are selected from populations that are comparable in all main respects other than the factor under investigation (i.e. age, gender, SES) or variables are included as covariates in analyses	Fully addressed (2)
	The two groups being studied are selected from source populations that are not comparable in all respects (age, gender, SES, ethnicity) or variables are not all included as covariates in analyses	Partially addressed (1)
	The two groups are not comparable in most variables or variables are not reported	Not addressed (0) Not reported (0)
Ascertainment of maltreatment status	Experience of maltreatment (type, duration, age at onset) verified by Child Protective or Social Work service records, or history of institutionalisation (age at institutionalisation, duration), and parent-/carer- or self-report, with information on type, duration, age/developmental period during which exposed to maltreatment/institutionalisation	Fully addressed (2)
	Experience of maltreatment verified by Child Protective or Social Work service records, or history of institutionalisation, but information not available for type, duration, or age/developmental period during which exposed to maltreatment/institutionalisation	Partially addressed (1)
	Experience of maltreatment assessed by parent- or self-report only	Not addressed (0) Not reported (0)

Exclusion of maltreatment in comparison group	Absence of CPS/SW involvement and self- or parent-report	Fully addressed (2)
	Either absence of CPS/SW involvement or self- or parent-report	Partially addressed (1)
	Absence of maltreatment not checked or reported	Not addressed (0)
		Not reported (0)
Appropriateness of analysis and quality of analyses	Appropriate analyses and effect sizes reported or could be calculated	Fully addressed (2)
	Appropriate analyses but ES not reported and could not be calculated	Partially addressed (1)
	Inappropriate analyses	Not addressed (0)
		Not reported (0)
Quality of reporting results	All mean, SD and test statistic values for individual tests reported (i.e. not just EF composite scores)	Fully addressed (2)
	All mean, SD, and sig. values of individual tests not reported, or no test statistic values reported	Partially addressed (1)
	No means and SD reported	Not addressed (0)
		Not reported (0)

Appendix 4: Summary of quality ratings

		Matching of comparison group	Sample size and power	Analysis	Quality of reporting	Ascertainment of maltreatment	Verification of absence in comparison group	Reliability and validity of EF measures	TOTAL (out of 14)
1	Augusti and Melinder 2013	2	0	2	2	2	1	1	10
2	Broomand 2002	2	0	0	0	2	0	2	6
3	Bücker et al 2012	2	0	2	1	2	1	2	10
4	Cipriano-Essel et al 2013	2	2	2	2	2	1	2	13
5	DeBellis et al 2009	2	1	2	2	2	1	2	12
6	De Prince et al 2009	2	0	2	2	1	1	2	11
7	Guyer et al 2006	2	0	2	1	2	1	0	8
8	Harris 2011	2	0	2	2	2	1	2	11
9	Kirke-Smith et al 2014	1	2	2	2	2	1	2	12
10	Mezzacappa et al 2001	1	2	2	2	2	1	0	10
11	Mothes et al 2015	2	0	2	2	1	1	2	10
12	Nadeau & Nolin 2013	2	0	2	2	2	0	2	10
13	Pears et al 2010	2	2	2	2	2	1	2	12
14	Skowron et al 2014	2	2	2	2	2	1	2	13
15	Vasilevski & Tucker 2016	1	0	2	2	2	0	2	10
16	Weller & Fisher 2012	0	1	2	2	2	1	0	8
17	Weller et al 2015	1	2	2	2	2	2	0	10

Appendix 5: Author guidelines for Child: Care Health and Development

Content of Author Guidelines: 1. General, 2. Ethical Guidelines, 3. Submission of Manuscripts, 4. Manuscript Types Accepted, 5. Manuscript Format and Structure, 6. After Acceptance

1. GENERAL

Child: Care, Health and Development is an international, peer-reviewed journal which publishes papers dealing with all aspects of the health and development of children and young people. We aim to attract quantitative and qualitative research papers relevant to people from all disciplines working in child health. We welcome studies which examine the effects of social and environmental factors on health and development as well as those dealing with clinical issues, the organization of services and health policy. We particularly encourage the submission of studies related to those who are disadvantaged by physical, developmental, emotional and social problems. The journal also aims to collate important research findings and to provide a forum for discussion of global child health issues.

Please read the instructions below carefully for details on the submission of manuscripts, the journal's requirements and standards as well as information concerning the procedure after a manuscript has been accepted for publication in *Child: Care, Health and Development*. Authors are encouraged to visit Wiley-Blackwell Author Services for further information on the preparation and submission of articles and figures.

2. ETHICAL GUIDELINES

Child: Care, Health and Development adheres to the below ethical guidelines for publication and research.

2.1. Authorship and Acknowledgements

Authors submitting a paper do so on the understanding that the manuscript has been read and approved by all authors and that all authors agree to the submission of the manuscript to the Journal. ALL named authors must have made an active contribution to the conception and design and/or analysis and interpretation of the data and/or the drafting of the paper and ALL must have critically reviewed its content and have approved the final version submitted for publication. Participation solely in the acquisition of funding or the collection of data does not justify authorship.

Child: Care, Health and Development adheres to the definition of authorship set up by The International Committee of Medical Journal Editors (ICMJE). According to the ICMJE authorship criteria should be based on 1) substantial contributions to conception and design of, or acquisition of data or analysis and interpretation of data, 2) drafting the article or revising it critically for important intellectual content and 3) final approval of the version to be published. Authors should meet conditions 1, 2 and 3. Except in the case of complex large-scale or multi-centre research, the number of authors should not exceed six.

It is a requirement that all authors have been accredited as appropriate upon submission of the manuscript.

Acknowledgements: Under acknowledgements please specify contributors to the article other than the authors accredited.

2.2. Ethical Approvals

Experimental Subjects: All studies using human or animal subjects should include an explicit statement in the Material and Methods section identifying the review and ethics committee approval for each study, if applicable. Editors reserve the right to reject papers if there is doubt as to whether appropriate procedures have been used.

2.3 Appeal of Decision

The decision on a paper is final and cannot be appealed.

2.4 Permissions

If all or parts of previously published illustrations are used, permission must be obtained from the copyright holder concerned. It is the author's responsibility to obtain these in writing and provide copies to the Publishers.

2.5 License Agreements

If your paper is accepted, the author identified as the formal corresponding author for the paper will receive an email prompting them to login into Author Services; where via the Wiley Author Licensing Service (WALS) they will be able to complete the license agreement on behalf of all authors on the paper.

For authors signing the copyright transfer agreement

If the OnlineOpen option is not selected the corresponding author will be presented with the copyright transfer agreement (CTA) to sign. The terms and conditions of the CTA can be previewed in the samples associated with the Copyright FAQs below:

CTA Terms and Conditions http://authorservices.wiley.com/bauthor/faqs_copyright.asp

For authors choosing OnlineOpen

If the OnlineOpen option is selected the corresponding author will have a choice of the following Creative Commons License Open Access Agreements (OAA):

Creative Commons Attribution License OAA

Creative Commons Attribution Non-Commercial License OAA

Creative Commons Attribution Non-Commercial -NoDerivs License OAA

To preview the terms and conditions of these open access agreements please visit the Copyright FAQs hosted on Wiley Author Services

http://authorservices.wiley.com/bauthor/faqs_copyright.asp and visit <http://www.wileyopenaccess.com/details/content/12f25db4c87/Copyright--License.html>.

If you select the OnlineOpen option and your research is funded by The Wellcome Trust and members of the Research Councils UK (RCUK) you will be given the opportunity to publish your article under a CC-BY license supporting you in complying with Wellcome Trust and Research Councils UK requirements. For more information on this policy and the Journal's compliant self-archiving policy please visit: <http://www.wiley.com/go/funderstatement>.

3. MANUSCRIPT SUBMISSION PROCEDURE

Manuscripts should be submitted electronically via the online submission site

<http://mc.manuscriptcentral.com/cch>. The use of an online submission and peer review site enables immediate distribution of manuscripts and consequentially speeds up the review

process. It also allows authors to track the status of their own manuscripts. Complete instructions for submitting a paper is available online and below. Further assistance can be obtained from Editorial Assistant Iris Poesse at cchadmin@wiley.com.

A covering letter must be submitted as part of the online submission process, stating on behalf of all the authors that the work has not been published and is not being considered for publication elsewhere.

Important note: All papers will go through an initial sifting process within the editorial board.

3.1. Getting Started

- Launch your web browser (supported browsers include Internet Explorer 6 or higher, Netscape 7.0, 7.1, or 7.2, Safari 1.2.4, or Firefox 1.0.4) and go to the journal's online Submission Site: <http://mc.manuscriptcentral.com/cch>
- Log-in or click the 'Create Account' option if you are a first-time user.
- If you are creating a new account.
 - After clicking on 'Create Account', enter your name and e-mail information and click 'Next'. Your e-mail information is very important.
 - Enter your institution and address information as appropriate, and then click 'Next.'
 - Enter a user ID and password of your choice (we recommend using your e-mail address as your user ID), and then select your area of expertise. Click 'Finish'.
- If you have an account, but have forgotten your log in details, go to Password Help on the journals online submission system <http://mc.manuscriptcentral.com/cch> and enter your e-mail address. The system will send you an automatic user ID and a new temporary password.
- Log-in and select 'Author Centre.'

3.2. Submitting Your Manuscript

- After you have logged in, click the submission link in the menu bar.
- Enter data and answer questions as appropriate. You may copy and paste directly from your manuscript and you may upload your pre-prepared covering letter.
- Click the 'Next' button on each screen to save your work and advance to the next screen.
- You are required to upload your files.
 - Click on the 'Browse' button and locate the file on your computer.
 - Select the designation of each file in the drop-down menu next to the 'Browse' button.
 - When you have selected all files you wish to upload, click the 'Upload Files' button.
- Review your submission (in HTML and PDF format) before sending it to the Journal. Click the 'Submit' button when you are finished reviewing.

3.3. Manuscript Files Accepted

Manuscripts should be uploaded as Word (.doc) or Rich Text Format (.rft) files (not write-protected) plus separate figure files. It is recommended that, where possible, line figures be embedded into a single Microsoft Word document. For halftone figures, only high-resolution TIF or EPS files are suitable for printing. The text file must contain the entire manuscript including Abstract (structured abstracts, not more than 300 words, including background, methods, results and conclusions are preferred); Introduction; Methods; Results; Discussion; Acknowledgements; References; Tables; Figure legends, but no embedded figures. Manuscripts should be formatted as described in the Author Guidelines below.

3.4. Peer Review Process

Manuscripts submitted to *Child: Care, Health and Development* are subject to initial scrutiny by the SIFT committee which consists of members of the Editorial Board. Where the SIFT Committee believe it unlikely that the paper will be acceptable for publication either for methodological reasons or because it does not fall within areas likely to

be of central interest to our readers the paper will not be sent for formal peer review. The authors will be notified of this decision.

Manuscripts passing this initial scrutiny are reviewed by experts in the field, using a system of double-blinded review. The names of the reviewers will thus not be disclosed to the author submitting a paper and the name(s) of the author(s) will not be disclosed to the reviewers.

To allow double blinded review, please submit (upload) your main manuscript and title page as separate files.

Please upload:

- Your manuscript without title page under the file designation 'main document'
- Figure files under the file designation 'figures'
- The title page, Acknowledgements and Conflict of Interest Statement where applicable, should be uploaded under the file designation 'title page'

All documents uploaded under the file designation 'title page' will not be viewable in the HTML and PDF format you are asked to review in the end of the submission process. The files viewable in the HTML and PDF format are the files available to the reviewer in the review process.

3.5. Suggest a Reviewer

Child: Care, Health and Development attempts to keep the review process as short as possible to enable rapid publication of new scientific data. In order to facilitate this process, please suggest the names and current email addresses of 2 potential international reviewers whom you consider capable of reviewing your manuscript. In addition to your choice the journal editor will choose one or two reviewers as well.

3.6. Suspension of Submission Mid-way in the Submission Process

You may suspend a submission at any phase before clicking the 'Submit' button and save it to submit later. The manuscript can then be located under 'Unsubmitted Manuscripts' and you can click on 'Continue Submission' to continue your submission when you choose to.

3.7. E-mail Confirmation of Submission

After submission you will receive an e-mail to confirm receipt of your manuscript. If you do not receive the confirmation e-mail after 24 hours, please check your e-mail address carefully in the system. If the e-mail address is correct please contact your IT department. The error may be caused by some sort of spam filtering on your e-mail server. Also, the e-mails should be received if the IT department adds our e-mail server (uranus.scholarone.com) to their whitelist.

3.8. Manuscript Status

You can access ScholarOne Manuscripts (formerly known as Manuscript Central) any time to check your 'Author Centre' for the status of your manuscript. The Journal will inform you by e-mail once a decision has been made.

3.9. Submission of Revised Manuscripts

Revised manuscripts must be uploaded within 3 months of authors being notified of the decision. In exceptional cases a longer period may be agreed with the editor. Locate your manuscript under 'Manuscripts with Decisions' and click on 'Submit a Revision' to submit your revised manuscript. Please remember to delete any old files uploaded when you upload your revised manuscript. Please also remember to upload your manuscript document separate from your title page.

4. MANUSCRIPT TYPES ACCEPTED

Original Articles: Articles reporting original scientific data based quantitative or qualitative research are particularly welcomed. Articles should begin with a structured abstract and should ideally be between 2,000 and 3,000 words in length excluding tables and references. In the case of complex qualitative research reports, the editors may be prepared to extend the word limit to 5000 words.

Review Papers: The journal welcomes syntheses of research in the form of systematic reviews. The word limit may be extended, in some circumstances, to 5000 words. Reviews are structured in the same way as original research (see above). The journal will occasionally publish narrative reviews where it is felt that these will be of particular interest to the readers and will be important in encouraging debate.

Case Reports: The journal will very occasionally publish case reports but only where these are believed by the editors to hold important generalisable lessons for the clinical or scientific community. We would expect such reports to begin with a very brief narrative abstract. The main text (1500 words maximum) should include a brief description of the case followed by a short discussion section explaining the implications of the case for clinical practice or research. Normal processes of peer review apply.

Short Communications: The journal will occasionally publish short communications. Typically these will report the results of relatively simple studies with straightforward analyses and results. The format may be flexible in discussion with the editors but will normally consist of an extremely brief abstract followed by a main text containing not more than 1500 words and not more than 2 tables or illustrations. Normal processes of peer review apply.

Letters to the Editor: We encourage letters to the editor, either in response to published articles or where authors wish to raise important areas for discussion amongst the readership. The decisions on whether or not to publish will normally be taken within the editorial board and are based on whether it is felt that the letter opens or continues an important area for scientific debate.

Editorials: From time to time the editors will commission editorials, often to accompany specific papers or groups of papers. The format for these editorials is individually negotiated. Authors may choose to submit an editorial in the form of a brief (1200 words maximum) discussion with not more than 15 references on any subject.

All submissions, including those commissioned by the editors are subject to external peer review.

Special Issues: From time to time the Editor will commission a special issue of the Journal which will take the form of a number of papers devoted to a particular theme.

5. MANUSCRIPT FORMAT AND STRUCTURE

5.1. Format

Units and spellings: Système International (SI) units should be used, as given in *Units, Symbols and Abbreviations* (4th edition, 1988), published by the Royal Society of Medicine Services Ltd, 1 Wimpole Street, London W1M 8AE, UK. Spelling should conform to that used in *The Concise Oxford Dictionary*, published by Oxford University Press.

Language: The language of publication is English. If English is not your first language, then you will find it helpful to enlist the help of a native English speaker to edit the piece, to correct grammar and ensure that idioms are correct. This too makes it easier for the reviewers to give full justice to your work. Authors for whom English is a second language may choose to have their manuscript professionally edited before submission to improve the English. A list of independent suppliers of editing services can be found at http://authorservices.wiley.com/bauthor/english_language.asp. All services are paid for and arranged by the author, and use of one of these services does not guarantee acceptance or preference for publication.

Chinese Scholars Network is a resource for scholars, academics, and researchers in China who would like to publish their work in English language journals.

5.2. Structure

The following checklist should be used to check the manuscript before submission. Articles are accepted for publication at the discretion of the Editor. A manuscript reporting original research should ideally be between 2000 and 3000 words. In the case of complex qualitative research reports, or systematic reviews, the editors may in some circumstances be prepared to extend the word limit to 5000 words. The manuscript should consist of the sections listed below.

Title Page: The title page should give both a descriptive title and short title. The title should be concise and give a brief indication of what is in the paper. Authors are required to detail in full: qualifications, current job title, institution and full contact details. Also a word count for the article and keywords should be given on the title page.

To allow double-blinded review, please submit (upload) your main manuscript and title page as separate files as explained in section 3.4.

Abstract: Structured abstracts, not more than 300 words, including background, methods, results and conclusions are preferred

Optimizing Your Abstract for Search Engines

Many students and researchers looking for information online will use search engines such as Google, Yahoo or similar. By optimizing your article for search engines, you will increase the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in another work. We have compiled these guidelines to enable you to maximize the web-friendliness of the most public part of your article.

Main Text

Generally, all papers should be divided into the following sections and appear in this order: Abstract (structured abstracts, not more than 300 words, including background, methods, results and conclusions are preferred); Introduction; Methods; Results; Discussion; Acknowledgements (these should be brief and must include references to sources of financial and logistical support); References; Tables; Figures.

Key Messages

From 2007 onwards a key messages box should be provided with each manuscript. This should include up to 5 messages on key points of practice, policy or research. This also applies to articles solicited for themed issues.

5.3. References

References cited in the text should list the authors names followed by the date of their publication, unless there are three or more authors when only the first author's name is

quoted followed by et al. References listed at the end of the paper should include all authors' names and initials, and should be listed in alphabetical order with the title of the article or book, and the title of the Journal given in full as shown:

Havermans, T. & Eiser, C. (1994) Siblings of a child with cancer. *Child: care, health and development*, 20, 309-322.

Cart, P. (1984) Observation. In: *The Research Process in Nursing* (ed. D.F.S. Cormack), pp. XX-XX. Wiley-Blackwell, Oxford, UK.

Work that has not been accepted for publication and personal communications should not appear in the reference list, but may be referred to in the text (e.g. 'A. Author, unpubl. observ.' or 'B. Author, pers. comm.'). It is the authors' responsibility to obtain permission from colleagues to include their work as a personal communication. A letter of permission should accompany the manuscript.

The editor and publisher recommend that citation of online published papers and other material should be done via a DOI (digital object identifier), which all reputable online published material should have - see www.doi.org/ for more information. If an author cites anything which does not have a DOI they run the risk of the cited material not being traceable.

We recommend the use of a tool such as [EndNote](#) or [Reference Manager](#) for reference management and formatting. EndNote reference styles can be searched for here: www.endnote.com/support/enstyles.asp.

Reference Manager reference styles can be searched for here: www.refman.com/support/rmstyles.asp

5.4. Tables, Figures and Figure Legends

Figures and Tables: Always include a citation in the text for each figure and table. Artwork should be submitted online in electronic form. Detailed information on our digital illustration standards is available below. Any abbreviations used in figures and tables should be defined in a footnote.

Preparation of Electronic Figures for Publication: Print publication requires high quality images to prevent the final product being blurred or fuzzy. Submit EPS (line art) or TIFF (halftone/photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Scans (TIFF only) should have a resolution of at least 300 dpi (halftone) or 600 to 1200 dpi (line drawings) in relation to the reproduction size (see below). Please submit the data for figures in black and white or submit a Colour Work Agreement Form (see Colour Charges below). EPS files should be saved with fonts embedded (and with a TIFF preview if possible).

For scanned images, the scanning resolution (at final image size) should be as follows to ensure good reproduction: line art: >600 dpi; halftones (including gel photographs): >300 dpi; figures containing both halftone and line images: >600 dpi.

Further information can be obtained at Wiley-Blackwell's guidelines for figures: <http://authorservices.wiley.com/bauthor/illustration.asp>.

Check your electronic artwork before submitting it: <http://authorservices.wiley.com/bauthor/eachecklist.asp>

Permissions: If all or parts of previously published illustrations are used, permission must be obtained from the copyright holder concerned. It is the author's responsibility to obtain these in writing and provide copies to the Publisher.

Colour Charges: It is the policy of *Child: Care, Health and Development* for authors to pay the full cost for the reproduction of their colour artwork. Therefore, please note that if there is colour artwork in your manuscript when it is accepted for publication, Wiley-Blackwell requires you to complete and return a Colour Work Agreement Form before your paper can be published. Any article received by Wiley-Blackwell with colour work will not be published until the form has been returned. If you are unable to access the internet, or are unable to download the form, please contact the Production Editor (CCH@wiley.com).

6. AFTER ACCEPTANCE

Upon acceptance of a paper for publication, the manuscript will be forwarded to the Production Editor who is responsible for the production of the journal.

6.1 Proof Corrections

The corresponding author will receive an email alert containing a link to a web site. A working e-mail address must therefore be provided for the corresponding author. The proof can be downloaded as a PDF (portable document format) file from this site.

Acrobat Reader will be required in order to read this file. This software can be downloaded (free of charge) from the following web site:
www.adobe.com/products/acrobat/readstep2.html. This will enable the file to be opened, read on screen and printed out in order for any corrections to be added. Further instructions will be sent with the proof. Hard copy proofs will be posted if no e-mail address is available; in your absence, please arrange for a colleague to access your e-mail to retrieve the proofs. Proofs must be returned to the Production Editor within three days of receipt. Only typographical errors can be corrected at this stage. Major alterations to the text cannot be accepted.

6.2 Early View (Publication Prior to Print)

Child: Care, Health and Development is covered by Wiley-Blackwell Early View service. Early View articles are complete full-text articles published online in advance of their publication in a printed issue. Early View articles are complete and final. They have been fully reviewed, revised and edited for publication, and the authors' final corrections have been incorporated. Because they are in final form, no changes can be made after online publication. The nature of Early View articles means that they do not yet have volume, issue or page numbers, so Early View articles cannot be cited in the traditional way. They are therefore given a Digital Object Identifier (DOI), which allows the article to be cited and tracked before it is allocated to an issue. After print publication, the DOI remains valid and can continue to be used to cite and access the article.

6.3 Author Services

Online production tracking is available for your article through Wiley-Blackwell's Author Services. Author Services enables authors to track their article - once it has been accepted - through the production process to publication online and in print. Authors can check the status of their articles online and choose to receive automated e-mails at key stages of production. The author will receive an e-mail with a unique link that enables them to register and have their article automatically added to the system. Please ensure that a complete e-mail address is provided when submitting the manuscript. Visit <http://authorservices.wiley.com/bauthor/> for more details on online production tracking and

for a wealth of resources including FAQs and tips on article preparation, submission and more.

For more substantial information on the services provided for authors, please see [Wiley-Blackwell Author Services](#)

6.4 Author Material Archive Policy

Please note that unless specifically requested, Wiley-Blackwell will dispose of all hardcopy or electronic material submitted two months after publication. If you require the return of any material submitted, please inform the editorial office or production editor as soon as possible.

6.5 Offprints and Extra Copies

A PDF offprint of the online published article will be provided free of charge to the corresponding author, and may be distributed subject to the Publisher's terms and conditions. Additional paper offprints may be ordered online. Please click on the following link, fill in the necessary details and ensure that you type information in all of the required fields [Offprint Cosprinters](#). If you have queries about offprints please email offprint@cosprinters.com

6.6 Note to NIH Grantees

Pursuant to NIH mandate, Wiley-Blackwell will post the accepted version of contributions authored by NIH grant-holders to PubMed Central upon acceptance. This accepted version will be made publicly available 12 months after publication. For further information, see www.wiley.com/go/nihmandate.

PARTICIPANT INFORMATION SHEET

Research Title: Attachment-related difficulties in looked after children in foster care and their relationship with foster carer stress and satisfaction.

Dear Foster Carer,

My name is Julia King and I am studying for my Doctorate in Clinical Psychology at the University of Edinburgh. I am required to undertake a project as part of my course and invite you to take part in the following study. Before you decide please read the following information carefully and ask any questions you might have.

Why is this study being done?

Looked after children are more likely to develop insecure, rather than secure, attachment strategies. As you will be aware, caring for looked after children who have experienced difficulties in early attachment relationships can be challenging. Given the shortage of foster carers and the number that leave the workforce each year, it is really important to look at foster carer satisfaction, particularly in relation to attachment-related difficulties in their looked after child and the foster carer–child relationship.

Why have I been invited to take part?

You have been invited because you care for a foster child between the ages of 3 and 11 years who has been with you for more than one month. You have been identified by Social Work as fitting these criteria. I am hoping to recruit at least 85 foster carers to take part in this study.

What are the benefits of taking part?

This study is not intended to benefit you personally. However, it is hoped that the results of the study will help us gain a clearer understanding of attachment-related difficulties of children in foster care, and also help focus support and training for foster carers who are looking after children with attachment difficulties.

What will I be asked to do?

If you are interested in taking part in this study you will be sent a consent form and some questionnaires. You should read the consent form carefully and contact the researcher if you have any further questions. Following this, you should complete the consent form and the questionnaires and post these back to me in the prepaid envelope provided. There are seven questionnaires in total which will ask you questions about difficulties your foster child may have, how confident and satisfied you feel about looking after your foster child, and your own well-being; there is also a short demographic questionnaire. All this should take no more than one hour.

In addition, there are two short questionnaires to give to your foster child's nursery or school teacher to complete. Once completed, they will then pass the questionnaires back to you and I would ask you to return these to me with the other questionnaires.

Do I have to take part?

No. It is completely up to you whether you wish to take part or not. If you do decide to take part you can withdraw from the study at any time, without giving a reason. If you

choose not to take part, this will not affect the services that you or your foster child receives in any way.

What do I have to do if I want to take part?

If you are interested in taking part, I would be grateful if you could let your Supervising Social Worker know and they can give you a consent form and questionnaire pack for you to complete. Once completed, please return them to me in the pre-paid envelope as soon as possible. If you would prefer to complete them over the telephone, please phone me on 01324 610846 to arrange that. I will then send out the same questionnaire pack four months later; please complete this and return to me in the same way.

Will my information be kept confidential?

Yes. You will be given a participant code so that any identifiable information is anonymised. Information relating to your code number and contact details will be held on a password protected computer database. All written information e.g. questionnaires will be kept in a separate locked cabinet.

What are the possible disadvantages and risks of taking part?

This study will take up to one hour of your time, on two occasions. Some people may find some of the questions difficult to answer or may feel some distress following completion of the questionnaires. You should speak to your Supervising Social Worker in the first instance, or please feel free to get in touch with the project investigators, whose details are below. You do not need to answer any questions that you do not want to. Please be assured that this research is not intended to investigate your practice, it aims to look at your feelings and opinions, and your foster child's behaviour.

What if I participate and then change my mind?

You may withdraw from this study at any time, and your data will be removed and destroyed. Your withdrawal will not affect you in any way and you will not be asked for a reason.

What happens when the research stops?

The results of the study will be written up and submitted as a thesis for a Doctorate in Clinical Psychology. The results will also be submitted for publication to a scientific journal. No identifiable information will be included in these documents.

Further information

If you require further information or have any questions or concerns you can contact Julia King (Trainee Clinical Psychologist) by telephone on 01324 610846, or by email on s1269692@ed.ac.uk.

If you are unhappy about any aspect of the study, or if you wish to make a complaint please contact the Academic Supervisor at the University of Edinburgh, Dr Jill Cossar (jill.cossar@ed.ac.uk)

Thank you for taking the time to read this.



PARTICIPANT CONSENT FORM

Research Title: Attachment-related difficulties in looked after children in foster care and their relationship with foster carer stress and satisfaction.

Name of researcher: Julia King

Please initial each box to show consent.

I confirm I have read and understood the attached information sheet dated October 2015. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

☐

I understand that my participation is voluntary and that I can withdraw from this study at any time, without giving a reason.

☐

I understand that any data regarding my participation will be stored safely, securely and confidentially, and I will not be personally identified.

☐

I understand that I may omit any questions which I do not want to answer.

☐

I agree to pass on relevant questionnaires to my child's school teachers/nursery key worker (if applicable).

☐

I agree to take part in this study.

☐

Your Name:

Your signature:

Date:

Signature of Researcher:

Date:



INFORMATION SHEET FOR TEACHERS

Research Title: Attachment-related difficulties in looked after children in foster care and their relationship with foster carer stress and satisfaction.

My name is Julia King and I am studying for my Doctorate in Clinical Psychology at the University of Edinburgh. I am required to undertake a project as part of my course and will be asking foster carers, and school or nursery teachers of the children they care for, to take part in the following study. Please feel free to contact me if anything is not clear or if you would like to discuss the study further.

Why is this study being done?

Second only to kinship care, foster care is generally accepted as preferential to other forms of accommodating children who are looked after away from home, but caring for children who have experienced difficulties in early attachment relationships can be challenging. Given the national shortage of foster carers and the number that leave the workforce each year, it is really important to look at foster carer satisfaction, particularly in relation to attachment-related difficulties in their looked after child and the foster carer–child relationship.

Why have I been invited to take part?

This study is looking to recruit foster carers who have a child between the ages of 3 and 12 years placed with them for a minimum of one month. We are also hoping to include teacher-report ratings of attachment-related difficulties. As the teacher/early years officer of one of the children included in this study, you meet this criterion.

What will be involved in the study?

Foster carers who have agreed to participate in this research will pass on this information sheet and questionnaires to you. If you decide to take part, there are two questionnaires which will ask you questions about specific difficulties the child may have. All this should take no more than ten minutes. Once you have completed these questionnaires you would then give them back to the child's foster carer who would pass them on to me. I would not need to know any personal details about the child in question or any details about you or your school.

What are the advantages and disadvantages of taking part?

Advantages - the results of the study will help us gain a clearer understanding of the nature and prevalence of attachment-related difficulties of children in foster care, and also help focus support and training for foster carers who are looking after children with attachment difficulties.

Disadvantages – participation will involve a small increase in work load in order to complete two short questionnaires

Do I have to take part?

No. It is completely up to you whether you wish to take part or not. If you do decide to take part you can withdraw from the study at any time, without giving a reason. This would not have any effect on any aspect of your work or employment.

Will all information be kept confidential?

Yes. All written information e.g. questionnaires will be kept in a separate locked cabinet. No information that could identify you, your school or nursery, the child or their foster carer will be included in the study.

What happens when the research stops?

The results of the study will be written up and submitted as a thesis for a Doctorate in Clinical Psychology. The results will also be submitted for publication to a scientific journal. No identifiable information will be included in these documents.

If you have a complaint

If you have a concern about any aspect of the study, or if you wish to make a complaint please contact the Academic Supervisor at the University of Edinburgh, Dr Jill Cossar (jill.cossar@ed.ac.uk).

Further information

If you require further information or have any questions or concerns you can contact Julia King (Trainee Clinical Psychologist) by telephone on 01324 625156 or 01324 610846, or by email on s1269692@ed.ac.uk.

Thank you for taking the time to read this.

Appendix 9: Strengths and Difficulties Questionnaire (Age 2-4)

Strengths and Difficulties Questionnaire

2-4

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months or this school year.

Child's Name

Male/Female

Date of Birth.....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children (treats, toys, pencils etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often has temper tantrums or hot tempers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, tends to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally obedient, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries, often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, down-hearted or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often argumentative with adults	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often volunteers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can stop and think things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can be spiteful to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets on better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sees tasks through to the end, good attention span	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature

Date

Parent/Playgroup leader/Nursery teacher/Other (please specify:)

Thank you very much for your help

© Robert Goodman, 2005

Appendix 9: Strengths and Difficulties Questionnaire (Age 5-17)

Strengths and Difficulties Questionnaire

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months or this school year.

Child's Name

Male/Female

Date of Birth.....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children (treats, toys, pencils etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often has temper tantrums or hot tempers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, tends to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally obedient, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries, often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, down-hearted or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often lies or cheats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often volunteers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinks things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steals from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets on better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sees tasks through to the end, good attention span	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature

Date

Parent/Teacher/Other (please specify:)

Thank you very much for your help

© Robert Goodman, 2005

Appendix 10: Relationship Problems Questionnaire: Carer report

Relationship Problems Questionnaire

	Exactly like ----- (child's name)	Like ----- (child's name)	A bit Like - ----- (child's name)	Not at all like ----- (child's name)
Gets too physically close to strangers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is too cuddly with people s/he doesn't know well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often asks very personal questions of strangers even though s/he does not mean to be rude	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can be aggressive towards him/herself e.g. using bad language about him/herself, headbanging, cutting etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has no conscience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is too friendly with strangers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sometimes looks frozen with fear, without an obvious reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you approach him/her, he/she often runs away or refuses to be approached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There is a false quality to the affection s/he gives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you approach him/her, you never know whether s/he will be friendly or unfriendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scoring	3	2	1	0

Appendix 11: Relationship Problems Questionnaire: Teacher report

Relationship Problems Questionnaire

Please tick the statement that best describes this child.

	Exactly like ----- (child's name)	Like ----- (child's name)	A bit like ----- (child's name)	Not at all like ----- (child's name)
Gets too physically close to strangers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is too cuddly with people s/he doesn't know well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often asks very personal questions of strangers even though s/he does not mean to be rude	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can be aggressive towards him/herself e.g. using bad language about him/herself, headbanging, cutting etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has problems with conscience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is too friendly with strangers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sometimes looks frozen with fear, without an obvious reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you approach him/her, he/she often runs away or refuses to be approached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There is a false quality to the affection s/he gives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you approach him/her, you never know whether s/he will be friendly or unfriendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Will not admit that they cannot do tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Will not ask for help with tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tends to copy other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is too keen to get to know school staff, eg teachers, janitor, playground supervisors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scoring	3	2	1	0

Appendix 12: Brief Assessment Checklist for Children

BAC-C

Brief Assessment Checklist for Children (ages 4 to 11)

Here are some statements that describe children's behaviour and feelings.

For each statement, please circle the number that best describes your child in the last 4 to 6 months.

- circle 0 if the statement is not true for your child in the last 4 to 6 months.
- circle 1 if the statement is partly true for your child in the last 4 to 6 months.
- circle 2 if the statement is mostly true for your child in the last 4 to 6 months.

- | | | | | | |
|-----|-----|---|---|---|---|
| | 1. | 0 | 1 | 2 | Can't concentrate, short attention span |
| | 2. | 0 | 1 | 2 | Craves affection |
| | 3. | 0 | 1 | 2 | Eats too much |
| | 4. | 0 | 1 | 2 | Fears you will reject her/him |
| | 5. | 0 | 1 | 2 | Hides feelings |
| | 6. | 0 | 1 | 2 | Is convinced that friends will reject her/him |
| | 7. | 0 | 1 | 2 | Lacks guilt or empathy |
| | 8. | 0 | 1 | 2 | Prefers to be with adults, rather than children |
| | 9. | 0 | 1 | 2 | Relates to strangers 'as if they were family' |
| | 10. | 0 | 1 | 2 | Seems insecure |
| | 11. | 0 | 1 | 2 | Startles easily ('jumpy') |
| | 12. | 0 | 1 | 2 | Suspicious |
| | 13. | 0 | 1 | 2 | Too dramatic (false emotions) |
| | 14. | 0 | 1 | 2 | Too friendly with strangers |
| | 15. | 0 | 1 | 2 | Too jealous |
| | 16. | 0 | 1 | 2 | Treats you as though you were the child and she/he was the parent |
| 18. | 17. | 0 | 1 | 2 | Uncaring (shows little concern for others) |

For each of the following statements:

- circle 0 if the behaviour did not occur in the last 4 to 6 months.
- circle 1 if the behaviour occurred once in the last 4 to 6 months.

- | | | | | | |
|--|-----|---|---|---|--|
| | 18. | 0 | 1 | 2 | Distressed or troubled by traumatic memories |
| | 19. | 0 | 1 | 2 | Does not show pain if physically hurt |
| | 20. | 0 | 1 | 2 | Sexual behaviour not appropriate for her/his age |

U.K. English version www.childpsych.org.uk

Michael Tarren-Sweeney, PhD, 2012. Copyright for the BAC-C is held by the author. This instrument may only be used, copied or downloaded for legitimate mental health screening, casework monitoring and research purposes. It should not be altered without the author's permission.

Appendix 13: Child-Parent Relationship Scale

CHILD-PARENT RELATIONSHIP SCALE

Robert C. Pianta

Please reflect on the degree to which each of the following statements currently applies to your relationship with your child. Using the scale below, circle the appropriate number for each item.

	Definitely does not apply 1	Not really 2	Neutral, not sure 3	Applies somewhat 4	Definitely applies 5
1. I share an affectionate, warm relationship with my child.	1	2	3	4	5
2. My child and I always seem to be struggling with each other.	1	2	3	4	5
3. If upset, my child will seek comfort from me.	1	2	3	4	5
4. My child is uncomfortable with physical affection or touch from me.	1	2	3	4	5
5. My child values his/her relationship with me.	1	2	3	4	5
6. When I praise my child, he/she beams with pride.	1	2	3	4	5
7. My child spontaneously shares information about himself/herself.	1	2	3	4	5
8. My child easily becomes angry at me.	1	2	3	4	5
9. It is easy to be in tune with what my child is feeling.	1	2	3	4	5
10. My child remains angry or is resistant after being disciplined.	1	2	3	4	5
11. Dealing with my child drains my energy.	1	2	3	4	5
12. When my child is in a bad mood, I know we're in for a long and difficult day.	1	2	3	4	5
13. My child's feelings toward me can be unpredictable or can change suddenly.	1	2	3	4	5
14. My child is sneaky or manipulative with me.	1	2	3	4	5
15. My child openly shares his/her feelings and experiences with me.	1	2	3	4	5

©1992 Pianta, University of Virginia.

Appendix 14: Parenting Sense of Competence Scale
(Gibaud-Wallston & Wandersman, 1978)

Please rate the extent to which you agree or disagree with each of the following statements.

Strongly disagree	Somewhat disagree	Disagree	Somewhat agree	Agree	Strongly agree
1	2	3	4	5	6
1. The problems of taking care of a child are easy to solve once you know how your actions affect your child, an understanding I have acquired.	1	2	3	4	5 6
2. Even though being a foster carer could be rewarding, I am frustrated now while my child is at his / her present age.	1	2	3	4	5 6
3. I go to bed the same way I wake up in the morning, feeling I have not accomplished a whole lot.	1	2	3	4	5 6
4. I do not know why it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated.	1	2	3	4	5 6
5. My foster carer was better prepared to be a good foster carer than I am	1	2	3	4	5 6
6. I would make a fine model for a new foster carer to follow in order to learn what she would need to know in order to be a good foster carer.	1	2	3	4	5 6
7. Being a parent is manageable, and any problems are easily solved.	1	2	3	4	5 6
8. A difficult problem in being a foster carer is not knowing whether you're doing a good job or a bad one.	1	2	3	4	5 6
9. Sometimes I feel like I'm not getting anything done.	1	2	3	4	5 6
10. I meet by own personal expectations for expertise in caring for my child.	1	2	3	4	5 6
11. If anyone can find the answer to what is troubling my child, I am the one.	1	2	3	4	5 6
12. My talents and interests are in other areas, not being a foster carer.	1	2	3	4	5 6
13. Considering how long I've been a foster carer, I feel thoroughly familiar with this role.	1	2	3	4	5 6
14. If being a foster carer of a child were only more interesting, I would be motivated to do a better job.	1	2	3	4	5 6
15. I honestly believe I have all the skills necessary to be a good foster carer to my child.	1	2	3	4	5 6
16. Being a foster carer makes me tense and anxious.	1	2	3	4	5 6
17. Being a good foster carer is a reward in itself.	1	2	3	4	5 6

Appendix 15: Parenting Stress Index – Short Form

Due to copyright issues this measure could not be included. To obtain a copy please go to:

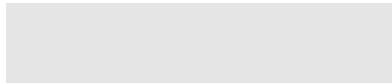
<http://www.hogrefe.co.uk/parenting-stress-index-short-form-psi-sf.html>

Appendix 16: Depression Anxiety and Stress Scales-21

DASS21		Name:		Date:	
<p>Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.</p> <p>The rating scale is as follows:</p> <p>0 Did not apply to me at all 1 Applied to me to some degree, or some of the time 2 Applied to me to a considerable degree or a good part of time 3 Applied to me very much or most of the time</p>					
1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g. in the hands)	0	1	2	3
8 (s)	I felt that I was using a lot of nervous energy	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3
12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down-hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18 (s)	I felt that I was rather touchy	0	1	2	3
19 (a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20 (a)	I felt scared without any good reason	0	1	2	3
21 (d)	I felt that life was meaningless	0	1	2	3

Appendix 17 Demographic information sheet

FOSTER CARER INFORMATION										
Your gender (please circle):	Male		Female							
Your marital status (please circle):	Married	Cohabiting	Separated	Divorced	Single	Widowed				
Who's living in the home?	Partner (please circle):		Yes		No					
	Birth or adoptive children:		1 st child:	2 nd child:	3 rd child:	4 th child:	5 th child:			
	Gender (M/F):									
	Age (months and years):									
	Other children placed in your home		1 st child:	2 nd child:	3 rd child:	4 th child:	5 th child:			
	Gender (M/F):									
	Age (years and months):									
Your experience:	Total number of years and months fostering:				years		months			
	Total number of children you have fostered (including children you are currently fostering):									
	Experience of fostering 3-12 year olds (please circle number of children you have fostered in this age range):		1	2	3	4	5	6+		
	Have you experienced any stressful events in the last year (e.g. bereavement/separation./major illness in self or significant other)? (please circle)				Yes		No			
FOSTER CHILD INFORMATION										
Child's age (years and months):	Male		Female							
Gender of child (please circle):	Month:	Year:								
Date of entry into current placement:	Age at first entry into care:				years		months			
Placement history:	Total time in care:				years		months			
	Number of previous foster placements (please circle):		0	1	2	3	4	5	6-10	11+



Type of placement (if applicable - please circle):	Short-term			Long-term		
Number of known previous foster placement breakdowns (please circle):	0	1	2	3	4	5+

Appendix 18: Ethical Approval - The University of Edinburgh



SCHOOL of HEALTH IN SOCIAL SCIENCE
CLINICAL AND HEALTH PSYCHOLOGY

The University of Edinburgh
Medical School
Doorway 6, Teviot Place
Edinburgh EH8 9AG

Telephone 0131 651 3969
Fax 0131 650 3891
Email submitting.ethics@ed.ac.uk

Julia King
Trainee Clinical Psychologist

14 April 2015

Dear Julia,

Application for Level 2/3 Approval

Project Title: Attachment-related difficulties in looked after children in foster care and their relationship with foster carer stress and satisfaction

Academic Supervisor: Jill Cossar

Thank you for submitting the above research project for review by the Department of Clinical and Health Psychology Ethics Research Panel. I can confirm that the submission has been independently reviewed and was approved on the 19th March 2015.

Should there be any change to the research protocol it is important that you alert us to this as this may necessitate further review.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'K Gardner'.

Kirsty Gardner
Administrator
Clinical Psychology

Appendix 19: Ethical Approval - Social work departments



Social Services
Clackmannanshire / Stirling Council
Lime Tree House,
Alloa, FK10 1EX
Tel: 01259 225017
Fax: 01259 225004
Email: vdesouza@clacks.gov.uk
Ref: VDS/SSLD

Date: 06 July 2015

Dear Julia King

RESEARCH ACCESS

Thank you for your research access request. We are grateful for the submission of the information requested and we have reviewed your documentation. We are now in a position to approve your request.

To progress this further, please contact Wendy McKitterick, Team Leader, Fostering & Adoption Team at your earliest convenience:

mckitterickw@stirling.gov.uk
01786 233857
Municipal Buildings, 8-10 Corn Exchange Road, STIRLING, FK8 2HU

At the conclusion of your research we ask that you please provide the service with a summary of your findings.

We wish you well with your research.

Yours sincerely

A handwritten signature in black ink that reads 'Val de Souza'.

Val de Souza
Head of Shared Social Services/CSWO
Clackmannanshire and Stirling Councils

c.c. Social Services Learning & Development

Phone 01786 404040 (mobile)

0845 277 7000 (landline)

text 07717990001 web www.stirling.gov.uk

Appendix 19: Ethical Approval - Social work departments

Our Ref: ACC/DW/JK/0217
Your Ref:
Contact: Alasdair Macdonald
Tel: (01698) 332059
Fax: (01698) 403065
E-Mail: macdonalda@northlangov.uk
Date: 6 February 2017



Julia King
Trainee Clinical Psychologist
Child and Adolescent Mental Health Service
The Manor
Brown Street
FALKIRK
FK1 4PX

Health and Social Care North Lanarkshire
Planning and Quality Assurance,
Scott House, 73-77 Merry Street
Motherwell ML1 1JE
www.northlan.gov.uk

Dear Julia,

I write to inform you that your Research Access Application has been successful, providing the terms and conditions of the Research Contract you signed are met.

The contact person assigned to you for your research will be Sharon Graham, Senior Social Worker. You can contact Sharon on 01236 856354.

If you have any queries or require further feedback regarding the above please do not hesitate to contact me at the above telephone number.

Yours sincerely

A handwritten signature in black ink, appearing to read "Alasdair Macdonald".

Alasdair Macdonald
Senior Officer (Research and Management Information)



Appendix 19: Ethical Approval - Social work departments

Appendix C

**Delayed Office Opening for
Employee Training**
*This Office will be closed from 8.45 am
– 11.00 am on the 1st Thursday of each
month.*



Ms Julia King
NHS Forth Valley
Child & Adolescent Mental Health Service
The Manor, Brown Street
FALKIRK
FK1 4PX

Email: julia.king7@nhs.net

Pullar House 35 Kinnoull Street
Perth PH1 5GD
Tel (01738) 476200/476211
Fax (01738) 476210

Contact Alana Dawson
Direct Dial (01738) 476349
Email: ADawson@pkc.gov.uk
Website: www.pkc.gov.uk

Our ref PD/AD

Your ref

Date 26 August 2016

Dear Ms King

**Attachment-related difficulties in looked after children in foster care and their
relationship with foster carer stress and satisfaction**

Thank you for your request to undertake research in Perth and Kinross.

I am pleased to confirm that your research has been approved in principle by
Education and Children's Services Senior Management, subject to the conditions
enclosed.

We look forward to receiving a copy of the findings of your research.

Yours sincerely

Paul Davison
Corporate Research and Information Manager

Enc

Copy to: Jacquie Pepper, Head of Children, Young People and Families
Debbie Gillespie, Team Leader - Family Placement & Kinship Care Team

Appendix 19: Ethical Approval - Social work departments

From: morgan-klein, philip
Sent: 23 October 2015 17:25
To: King, Julia
Cc: thomson, vivien
Subject: Research Access request

Julia,

I am pleased to confirm that your application for research access has been approved by the Head of Social Work, Children's Services, subject to the following conditions:

1. That you ensure the confidentiality of the foster carers and teachers/early years officers who agree to participate in your research;
2. That you ensure the confidentiality of Falkirk Council's participation by ensuring the anonymity of the Council in any outputs of your research;
3. That you will follow the methodology outlined in your most recent revision of your application and the broad areas covered in your questionnaires;
4. That you will provide the Service with a copy of your research findings which we would like to use to inform service improvement as part of our continuous improvement processes. We are not asking you to do extra work to provide a separate report for us, only a copy of the section in your thesis that covers the discussion of your research findings.
5. Participation in research is entirely voluntary on the part of foster carers, teachers and early years officers, so we cannot guarantee to provide the number of respondents you are hoping to recruit.

So, could you please confirm to me by email that you are content with the above conditions.

Once this is done you can get in touch with Russ Paterson, the team manager Adoption & Fostering to make the arrangements for your research. Russ can be contacted as follows:

Grangemouth Social Work Office
Oxgang Road
Grangemouth, FK3 9EF
Tel: 01324 504344

Appendix 19: Ethical Approval - Social work departments

[PROTECT] RE: 2015-20 Research Access

Stuart Osborough <stuart.osborough@edinburgh.gcsx.gov.uk>

Mon 24/08/2015 10:42

To: King Julia (NHS FORTH VALLEY) <julia.king7@nhs.net>;

Julia



Access within Children and Families for your research has been granted and you are now free to make the contacts you require. Please be aware that it will be the decision of individual staff members how, or indeed if, they are able to support your research. Margot Gillon has indicated she is happy to be the contact for this.

As part of granting this access, I would ask that you indicate how much staff time was made available to you and would also ask you to provide us with a short summary of your research findings when it is completed.

Please don't hesitate to contact me if you have any questions.

Cheers

Stuart

Appendix 19: Ethical Approval - Social work departments

RE: Research with foster carers - KING, Julia (NHS FORTH VALLEY)

Page 1 of 2

RE: Research with foster carers

Margaret Hayley <Margaret.Hayley@carevisions.co.uk>

Wed 29/06/2016 17:17

To: King Julia (NHS FORTH VALLEY) <julia.king7@nhs.net>;

Julia

I will contact you this week with regards making arrangements. I would be delighted for Care Visions to assist you with this task although not sure how responsive carers will be. How many would you need?

Margaret

Appendix 20: Thesis proposal form

Introduction

- 1) Please provide a brief critical review of relevant literature, which should clearly demonstrate the rationale and scientific justification for the research.

Research has consistently shown that looked after children (LAC) are more susceptible to mental health difficulties in comparison to the population at large. Studies using standardized assessment measures, such as the Child Behaviour Checklist (CBCL) and the Strengths and Difficulties Questionnaire (SDQ), designed to screen for symptoms that are commonly seen within the general population, have demonstrated that approximately half of all LAC experience mental health difficulties in comparison to approximately 10% within the general population (NICE, 2013). However, other characteristics not captured by standard assessment measures are also commonly seen in LAC, such as attachment-related interpersonal difficulties, social, behavioural and emotional dysregulation, trauma-related anxiety and dissociation, problematic sexual behaviour, abnormal responses to pain, excessive eating and food maintenance behaviour, and self-injury (Tarren-Sweeney, 2013a). The reasons for this are multi-factorial: although a proportion of children are looked after away from home (LAAFH) as a result of family problems, such as family dysfunction, acute family distress or parental illness, the majority (62%) are LAAFH as a direct result of physical, emotional and sexual abuse and/or neglect, which can all be considered forms of relational trauma. Such relational trauma, and the disruptions in caregiving which LAC experience within their families of origin, makes them more likely to develop insecure rather than secure, or disorganised, attachment strategies. Indeed, it is estimated that only 10% of LAC are securely attached to their biological parents, with the majority having insecure or disorganised patterns of attachment. Indeed, Green and Goldwyn (2002) estimated that insecure or disorganised attachments were seen in at least 65% of maltreated children. Other studies have estimated significantly higher rates of disorganised attachments in relation to children's maltreating or neglectful parents (Cicchetti *et al.*, 2006). Although disorganised attachment does not necessarily lead to the presence of mental health difficulties, it is related to the presence of externalizing behaviour (Guttmann-Steinmetz *et al.*, 2006) and difficulties with emotion regulation, both of which are likely to impede a child's ability to form close relationships with new carers (Zeanah *et al.*, 2011).

Second only to kinship care, foster care is generally accepted as preferential to other forms of accommodating children who are LAAFH. However, there is a shortage of foster carers within the UK; indeed estimates from last year indicate that Scotland needs approximately 850 more foster carers over the next 12 months in order to meet demand. Furthermore, 13% leave the workforce annually (Fostering Network, 2014). The role of the foster carer is to simultaneously provide the parenting dimensions of availability, sensitivity, acceptance, co-operation, and family membership within the context of a secure base (Secure Base Model, Schofield and Beek, 2006), and children need sensitive, therapeutic care in order to develop self-regulatory capacities for coping with negative affect. However, as a result of past experiences of relational trauma, many foster children behave in ways that fail to elicit caregiving or even as if they do not need caregivers (Dozier *et al.*, 2002). Thus the parenting task can, at times, be a considerable challenge. Indeed, relationships with foster carers have been found to be least positive for children with a history of multiple abuse and frequent moves in foster care (Rushton *et al.*, 2004).

It has been reported that between 20-50% of foster placements break down (Minty, 1999). Oosterman *et al.* (2007) conducted a review and meta-analysis regarding the factors that contribute to disruption in foster care. They reported that, amongst other factors, child characteristics were important in predicting placement breakdown. Specifically, older age at placement as well as emotional and behavioural difficulties showed small to moderate associations with placement breakdown. Other child characteristics were associated with placement outcome, such as attachment behaviours, adjustment and resilience. However, they also noted that parental behaviour seemed to moderate the relationship between child behaviour and placement breakdown. It has been estimated that one change of foster care placement increases the risk of mental health difficulties into adulthood by 22% (Percora *et al.*, 2005).

A number of studies have investigated the factors associated with foster carer wellbeing and placement outcomes using a range of constructs and there are mixed results as to whether stress of foster parenting correlates with perceived emotional and behavioural difficulties in children. Morgan and Baron (2011) showed a large effect size for the correlation of child emotional and behavioural difficulties to foster carer stress. Farmer *et al.* (2005) found that foster carer satisfaction and stress was associated with placement outcome, as assessed by child wellbeing and placement stability. Although they also reported that no particular emotional or behavioural difficulty led to foster carer strain apart from un-cooperative behaviour, cumulative difficulties did negatively impact on foster carers. However, one limitation of this study is that 'impact' was assessed by semi-structured interviews and rated by the researchers, details of which were not provided. Whenan *et al.* (2009) did not find an association between child emotional and behavioural difficulties and foster carer wellbeing and satisfaction with fostering. This was conducted with a sample of foster carers recruited from an Australian agency where fostering is voluntary, which may therefore not reflect a sample representative of the foster carer population and it is unclear whether cross-cultural differences also limit the generalisability of these findings to foster carers within the UK. In light of the mixed findings, it is worthy of note that only Morgan and Baron (2011) used a tool specifically designed to assess parenting stress rather than a more general measure of foster carer well-being, suggesting that parenting stress may be a more appropriate construct in this context.

The association between child emotional and behavioural difficulties and parenting stress is well established in correlational studies in birth families (Herring *et al.*, 2006; Plant and Sanders, 2007; Seltzer *et al.*, 2004) and preliminary findings suggest that this correlation also exists in foster families (Morgan and Baron, 2011). Further research in this area is warranted, particularly in relation to child attachment- and trauma-related difficulties. It is also unclear from these studies how child emotional and behavioural difficulties and foster carer satisfaction influence each other over time, but it is expected that the relationship would be transactional in nature. For example, child difficulties may reduce through skilled parenting, or foster carers may develop skills in response to the behaviour; others may become overwhelmed by the difficulties and show a decline in parenting skills and an increase in stress (Sinclair and Wilson, 2003). The quality of the relationship between children and foster carers may also be an important factor. To date, one study has investigated the impact of the quality of the relationship on foster carer wellbeing; it found that foster carers who perceive a 'warmer' relationship with their child are more satisfied with their caregiving role (Whenan *et al.*, 2009) but the effect of the relationship on parenting stress has not been investigated. In addition, none of the aforementioned studies have looked at how

attachment- and trauma-related mental health difficulties affect foster carer stress and satisfaction, quality of the child-foster carer relationship and placement outcome. Given the detrimental effects on both children and foster carers of placement breakdown, further research into the factors associated with parenting stress and satisfaction and placement outcome is warranted. Such research may also help inform local authorities' and independent fostering agencies' decision-making as to how best retain and support foster carers.

Although there are likely to be multiple correlates of foster carer satisfaction and placement outcomes, the aim of this research is to assess the relationships between child emotional, behavioural and attachment-related difficulties and perceived quality of the child-foster carer relationship to parenting stress and satisfaction of foster carers, how foster carer satisfaction and perceived quality of the relationship change and develop in relation to children's emotional, behavioural and attachment-related difficulties, and whether these influence placement outcome. In addition, previous research investigating child behavioural and emotional difficulties and foster carer wellbeing or self-efficacy to date has been cross-sectional and therefore causality cannot be assumed. The current study will measure all variables at two time points, 6 months apart, in order to clarify the direction of causality, should correlations exist.

The hypotheses of the proposed study are:

- a: There will be a positive correlation between perceived levels of emotional, behavioural and attachment-related difficulties in foster children and foster carer levels of parenting stress
- b: there will be a negative correlation between perceived levels of emotional, behavioural and attachment-related difficulties in foster children and foster carer satisfaction;
- c: the quality of the child-foster carer relationship will mediate the relationship between emotional and behavioural difficulties in foster children and parenting stress and satisfaction of foster carers, so that foster carers who perceive that they have a warmer relationship with their child will be less affected by any emotional, behavioural and attachment-related difficulties over time; and
- d: the level of emotional, behavioural and attachment-related difficulties, quality of the child-foster carer relationship and parenting stress and satisfaction at time 1 will predict placement outcome at time 2, so that placements with children with lower levels of emotional, behavioural and attachment-related difficulties, less parenting stress, higher satisfaction and a warmer perceived relationship will be less likely to break down.

Research Questions / Objectives:

(Keep these focused and concise, with a maximum of five research questions).

- 2) What is the principal research question / objective?

Principle research question:

(i) Does foster carers' perceived quality of the child-foster carer relationship mediate the relationship between child emotional, behavioural and attachment-related difficulties and foster carer parenting stress and/or satisfaction?

3) What are the secondary research questions / objectives if applicable?

Secondary research questions:

(ii) Is there a relationship between perceived emotional, behavioural and attachment-related difficulties in foster children and perceived quality of the relationship and how do these change over time?

(iii) Is there a relationship between perceived emotional, behavioural and attachment-related difficulties in foster children and parenting stress and satisfaction in foster carers and how do these change over time?

(iv) Does quality of the child-foster carer relationship at time 1 predict foster carer satisfaction at time 2, so that foster carers who perceive a warmer relationship with their child at time 1 are more satisfied with the foster carer role at time 2?

Methodology

4) Please give a full summary of your design and methodology. It should be clear exactly what will happen at each stage of the project.

Design

This exploratory study will adopt a longitudinal design to investigate the impact of foster carers' perceived emotional, behavioural and attachment-related difficulties of their child, perceived quality of their relationship with their child, on foster carer stress, satisfaction and placement outcome. Participants (foster carers) will complete eight self-report questionnaires to measure a number of variables at two time points, 6 months apart. This time interval has been chosen in order to allow sufficient time to enable child difficulties to lessen but not so long that a significant number of placements may have ended in the intervening period. Foster carers' ratings of child behaviour are likely to be influenced by a range of factors, including the length of time they have known the child and other contextual factors such as impending placement decisions. In addition, the experience of caring for many children with difficulties could influence foster carers' rating of such difficulties. The strength of their relationship with the child may also influence foster carers' interpretation of the child's behaviour (Tarren-Sweeney, Hazell and Carr, 2004). For this reason, teacher reports of child behaviour will also be included in order to provide cross-informant ratings of child behaviour.

Ethics

Ethical approval

Ethical approval will be sought from the University of Edinburgh, School of Health in Social Science and individual Local Councils. The NHS East of Scotland Ethics Board within NHS Scotland will also be informed of the study.

Informed consent

Participants will be informed that study participation is voluntary; the information sheet will state that participants are free to withdraw from the study at any time, and this will be reiterated in person. The consent form will check whether participants understand the study.

Data protection and confidentiality

All identifying information will remain confidential and will not appear in the write up. Contact details will be kept separately from questionnaire data. Numerical codes will be applied to questionnaire data for the researchers' purposes, only the researcher and supervisor will have access to this identifiable data. Both the questionnaire data and consent forms will be stored in separate locked cabinets; a key to the numerical codes will be kept in a different locked cabinet. Data within databases will be anonymised and access to files will be password protected. All data will be stored in a locked and secure location for one year following thesis submission, at which point they will be destroyed.

Participants

To ensure that this study samples an accurate representation of national foster carers, participants will be recruited from a number of local authorities and independent fostering agencies.

Procedure

In the first instance the managers of Children and Families Social Work Services and independent fostering agencies will be contacted and the nature of the project discussed. Following this, individual fostering social workers will be informed about the study and requested to inform all foster carers within their caseload who have a child placed with them for a minimum of one month. At this point social workers will provide foster carers with an information leaflet outlining the study and, where possible, group information sessions will be organised at foster carer support groups or at the end of routine CPD events. Foster carers who indicate interest in taking part in the study will then be sent consent forms and self-report questionnaires by the researcher. Consent from relevant Local Education Authorities will then be sought in order to collect teachers' or Early Years Officers' ratings and, subject to permission being granted, the researcher will discuss the study with a senior member of staff within each school or nursery to explain the research aims and invite the child's teacher or key worker to take part.

5) Please list the principal inclusion and exclusion criteria

Inclusion criteria:

Foster carers will be considered for participation in the study if:

- they are currently caring for a child between 3-12 years of age
- have been caring for this child for at least one month
- there is a plan for the child to stay with the carer more than 6 months

This study will focus on foster carers of children in early and middle childhood. In adolescence, attachment relationships are known to evolve alongside other

developmental changes, so that as cognitive and social developmental shifts occur, relationships with available caregivers are renegotiated as relationships with peers and romantic partners become more important. There are thus likely to be important differences between the parenting role of foster carers of young and adolescent children.

Exclusion criteria:

Foster carers of children aged less than 3 years will be excluded due to difficulties measuring perceived behavioural and emotional difficulties using standardized questionnaires. Respite and short-term carers will be excluded from this study as caring for LAC on a very short-term basis that is expected to be under 6 months is likely to affect the extent to which emotional, behavioural and attachment-related difficulties impact on foster carer factors, and will prevent a longitudinal analyses of these factors.

To ensure independence of data and to not overburden foster carers with two or more placed children who meet the exclusion or inclusion criteria, they will only be permitted to discuss one child. In order to prevent bias in choosing a child to discuss, foster carers will be asked to describe the child whose given name is alphabetically first.

6) How will data be collected?

If quantitative, list proposed measures and justify the use of these measures. If qualitative, explain how data will be collected giving reasonable detail. (Don't just say 'by interviews')

Data will primarily be collected by the postal or hand return of self-report quantitative questionnaires. These will have been given to the participants by their social worker or by the researcher at foster carer support groups at both time points, where possible. In order to maximise the response rate, foster carers will also be given the option of telephone or face-to-face completion of questionnaires. Subject to permission being given by the child's school or nursery, foster carers will be asked to give questionnaires to the child's teacher or key worker.

Participants (foster carers) will be asked to complete a demographic information sheet which will capture socio-demographic information, including: age and gender of child, length of current placement, number and age of foster, biological and/or adoptive children currently living at home, length of time as a foster carer, total number of foster children cared for to date.

A number of psychological self-report measures will be used at both time points:

- Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997); parent- and teacher-report forms
- Brief Assessment Checklist for Children (BAC-C; Tarren-Sweeney, 2013b)
- Relationship Problems Questionnaire (RPQ; Minnis *et al.*, 2013); parent- and teacher-report forms
- Child-Parent Relationship Scale (C-PRS; Pianta, 1992)
- Parenting Stress Index-Short Form (PSI-SF; Abidin, 1995)

- Parenting Sense Of Competence scale (PSOC; Gibaud-Wallston, 1978 in Johnston & Mash, 1989)
- Depression Anxiety Stress Scales (DASS-21; Lovibond and Lovibond, 1995)

The completion time for all quantitative measures is approximately 45 minutes. In addition, the child's school teacher or nursery key worker will be asked to complete the SDQ, RPQ and BAC-C in order to provide cross-informant ratings of children's difficulties.

Justification for the use of these measures:

Independent (predictor) variables

Child behaviour. The *Strengths and Difficulties Questionnaire* (SDQ; Goodman, 1997) is a 25-item screening instrument for common mental health problems in children aged 3-16 years and has parent-report (ages 3-4 and 4-16), teacher-report (ages 3-4 and 4-16) and adolescent self-report (age 11-16) forms. It has sub-scales for conduct problems, hyperactivity, emotional problems, peer relationships and pro-social behaviour. It has three possible responses: not true, somewhat true, definitely true, scored 0, 1 or 2. Its 20 items relating to conduct problems, hyperactivity, emotional problems and peer relationships are summed to produce a 'total difficulty' symptom score ranging from 0-40. Administration time is approximately 5-10 minutes. In a review of 48 studies, the SDQ showed satisfactory internal consistency (Cronbach $\alpha = 0.8$) and test-retest reliability (0.76) for total difficulties (Stone *et al.*, 2010). It also showed satisfactory internal consistency (Cronbach $\alpha = 0.73$) in an epidemiological British sample (Goodman, 2001).

This scale (parent- and teacher-report version) was selected for use on the basis of its psychometric properties, validation against other screening instruments such as the Child Behaviour Checklist (CBCL) (weighted SDQ-CBCL correlation 0.76) and psychiatric diagnoses, and brevity (Goodman & Scott, 1999). In addition, this measure is currently used to screen for and monitor the mental health of all looked after children aged 4-16 in England (Goodman & Goodman, 2012; Department for Children Schools and Families & Department of Health, 2009); indeed it is a statutory requirement to do so and therefore a key advantage is the availability of national comparison data. Furthermore, its pro-social sub-scale will allow some investigation into positive relational attributes of the child.

The *Brief Assessment Checklist for Children* (BAC-C; Tarren-Sweeney, 2013b) is a 20-item caregiver-report psychiatric rating scale derived from the Assessment Checklist for Children (ACC) (Tarren-Sweeney, 2007) which was designed to screen for and monitor mental health difficulties in children aged 3-11 years of age in foster, kinship residential and adoptive care, rather than the population at large. It screens for attachment and trauma-related psychopathology, specifically interpersonal, attachment-related difficulties, insecure relating, social, behavioural and emotional dysregulation, trauma-related anxiety and dissociation, abnormal responses to pain, over-eating and related food maintenance behaviours, sexual behaviour problems, self-injury and suicidal behaviours and discourse (Tarren-Sweeney, 2013b). Each item can be scored 0, 1 or 2, and all 20 items are summed to calculate the total score ranging from 0-40. The BAC-C has good internal consistency (Cronbach $\alpha = 0.89$) and construct validity (BAC-C - CBCL Spearman's $r = 0.82$). Test-retest reliability has not been assessed to date. This scale was selected for use in addition to the SDQ due to its focus on attachment- and trauma-related symptoms that, whilst prevalent in looked

after children, may not be adequately captured by standard rating instruments such as the SDQ.

Indicator of attachment-related difficulty. The *Relationship Problems Questionnaire* (RPQ; Minnis *et al.*, 2007) is a 10-item self-report scale designed to screen for social relatedness difficulties indicative of reactive attachment disorder (RAD) that might derive from prior poor attachment experiences. Six items describe inhibited RAD behaviours and four items describe disinhibited RAD behaviours, and it has parent-report and teacher-report forms. Caregivers respond to items on a 4-point Likert scale ranging from 0 = not at all like my child to 3 = exactly like my child. Total scores range from 0-30; higher scores indicate behaviours suggestive of RAD. The RPQ shows good internal consistency (Cronbach $\alpha = 0.85$). This scale (parent- and teacher-report version) was selected for use because of its focus on social relatedness difficulties indicative of RAD that may be relatively common in children who are LAAFH: indeed, research suggests that approximately 60% of such children would meet the threshold for potential RAD on this questionnaire.

Dependent (outcome) variables

Perceived quality of relationship. The *Child-Parent Relationship Scale* (C-PRS; Pianta, 1992) is a 15-item self-report scale designed to assess a parent's perception of their relationship with their child, in particular their perceived relational closeness and level of conflict. Caregivers respond to items derived from attachment theory on a 5-point Likert scale ranging from 1= definitely does not apply to 5= definitely applies. Total scores range from 15-75, with higher scores indicating higher perceived closeness in the relationship with their child. Scores on the closeness and conflict sub-scales can also be calculated. In an initial evaluation of its psychometric properties, the C-PRS showed good internal consistency (Cronbach $\alpha = 0.89$). The closeness and conflict sub-scales show satisfactory internal consistency (Cronbach $\alpha = 0.79$ and 0.72 , respectively; Pianta and Driscoll, 2011). Test-retest reliability has not been assessed to date. Although this measure was originally developed in the US with primary school age children, it has subsequently been validated for use with children from 3 years of age. It has also shown good internal reliability with a sample of foster carers (Cronbach $\alpha = 0.85$; Whenan *et al.*, 2009).

Parenting Stress. The *Parenting Stress Index-Short Form* (PSI-SF; Abidin, 1995) is a 36-item self-report questionnaire for parents of children 12 years and under that measures stress directly associated with the parenting role. Caregivers respond on a 5-point scale to indicate the degree to which they agree with each statement ranging from 1= strongly disagree to 5= strongly agree. Items address stress in three domains: parental distress, dysfunction in parent-child interaction, and stress associated with 'difficult' child behaviour, as well as total stress. The parental distress sub-scale provides an indication of the level of distress resulting from personal factors such as depression or conflict with a partner and from life restrictions due to the demands of child-rearing. The dysfunction in parent-child interaction sub-scale provides an indication of a parent's dissatisfaction with interactions with their child and the degree to which they find their child unacceptable. The difficult child sub-scale measures parents' perceptions of their child's self-regulatory abilities (Haskett *et al.*, 2006). A subsequent study by Haskett *et al.* (2006) provided support for a two-factor structure of the PSI-SF which they termed personal distress (PD) and childrearing stress (CS), therefore the total stress score will be used in the current study. A defensive responding scale is also included in order to identify parents who might be denying or minimising

problems. Low scores on this scale indicate high levels of defensive responding. The PSI-SF shows good internal consistency (Cronbach $\alpha = 0.83$) and test-retest reliability (0.84; Haskett *et al.*, 2006) and has been widely used in research with looked after children; it has also been used in studies with foster carers where it also shows good internal reliability (Cronbach $\alpha = 0.95$; Morgan and Baron, 2011).

Satisfaction with the parenting role. The *Parental Sense of Competence Scale* (PSOC; Gibaud-Wallston, 1978 in Johnston & Mash, 1989) is a 17-item self-report questionnaire which assesses role demands satisfaction, social service support satisfaction and personal needs satisfaction. Carers respond on a 5-point scale to indicate their degree of satisfaction ranging from 1= very dissatisfied to 5= very satisfied. Scores on the SFPI range from 17-85, with higher scores indicating that the foster carer experiences a higher level of satisfaction with fostering. The PSOC has been shown to have good internal consistency (Cronbach $\alpha = 0.77$), and good 6-week test-retest reliability (0.82; Johnston & Mash, 1989). In addition, the PSOC scale shows good internal consistency with foster carers (Cronbach $\alpha = 0.89$, Taylor, 2009).

Placement outcome. The outcome of placement will be assessed at Time 2 (four month follow-up), and outcome will be classified on a binary basis into: still in placement/planned, positive ending or unplanned ending/breakdown in placement in the intervening period.

Covariates

Foster carer well-being. Since foster carers' own adjustment and psychological functioning may be very relevant to their parenting stress and satisfaction, a measure of their general psychological well-being will be included. The *Depression Anxiety Stress Scales* (DASS-21; Lovibond and Lovibond, 1995) is a 21-item self-report measure designed to assess the dimensions of depression, anxiety and stress. Items are scored on a 4-point Likert scale ranging from 0 = did not apply to me at all to 3 = applied to me very much, or most of the time; seven items comprise each of the three scales: depression, anxiety and stress. Higher scores indicate higher levels of overall distress. The DASS-21 shows good internal consistency (Cronbach $\alpha = 0.9$ for anxiety, 0.95 for depression, 0.93 for stress and 0.97 for the total scale in a UK non-clinical sample (Crawford and Henry, 2003), and adequate convergent and discriminant validity.

Sample Size

7) What sample size is needed for the research and how did you determine this? For quantitative projects, outline the relevant Power calculations and the rationale for assuming given effect sizes. For qualitative projects, outline your reasoning for assuming that this sample size will be sufficient to address the study's aims.

No previous study has used the same variables as the proposed study therefore the effect size was based on studies which have examined correlations between these or similar variables. For example, Whenan *et al.* (2009) investigated the relationship between child emotional and behavioural difficulties and foster carer satisfaction and found correlation effect sizes between 0.36-0.91 (considered large within multiple regression analyses; Cohen, 1992). A medium effect size was chosen to remain conservative and reduce the likelihood of a Type II error, whilst remaining significant. Fritz & MacKinnon (2007) provide some minimal sample sizes for mediation using

the bootstrapped model; they propose a sample size of 71 if adopting a power level of 0.8 and a medium effect size for all paths. A review of previous studies suggests that attrition rates in longitudinal designs is up to 20% with a median attrition rate of 7% (Dumville, Torgerson & Hewitt, 2006). In order to remain conservative, a 20% attrition rate will be assumed and therefore a sample size of 85 will be needed.

- 8) Outline reasons for your confidence in being able to achieve a sample of at least this size. (e.g. by giving details of size of known available sample(s), percentage of this type of sample that typically participate in such studies, opinions of relevant individuals working in that area)

This study is being supported by the LAC Psychology service within Falkirk Council, an area wide service delivering mental health input and consultation to social work colleagues, foster carers and looked after children. The LAC team has close working relationships with social work colleagues and one clinical psychologist within this team has been involved in the planning and preparation of this study. The manager of Children and Families Social Work Services within Falkirk Council is also supporting this study and has reported that the study would be useful locally for social work services and they would therefore support the recruitment of participants.

Previous studies recruiting foster carers have shown response rates between 17.4% and 54%, with a mean response rate of 30.2% (Morgan and Baron, 2011; Taylor, 2009; Whenan *et al.*, 2009). Given the above numbers, and the endorsement of this study by Falkirk Council social work colleagues, it seems reasonable to anticipate achieving a sample size of 85.

Analysis

- 9) Please describe the methods of analysis (statistical or other appropriate methods, e.g. for qualitative research) by which the data will be evaluated to meet the study objectives. (IRAS A62)

Data will be analysed using SPSS version 19.0. In order to address hypotheses a and b, individual relationships among the variables will be explored through Pearson correlations prior to mediation analyses. The agreement between foster carer and teacher ratings will be assessed using the kappa statistic, according to guidelines provided by Herjanic and Reich (kappas above 0.50 indicate good agreement, those below 0.30 indicate poor agreement; Herjanic and Reich, 1997). As variables such as age of foster child and length of time in placement might also have an effect on the outcome variables, demographic information will also be assessed through Pearson correlations with each outcome variable. If significant relationships are found, these covariates will be included in the regression analyses as described below.

Hypothesis c will be addressed using simple mediation analyses using the procedure recommended by Preacher & Hayes (2008). The mediational model, in which perceived quality of the child-foster carer relationship will be a mediator of the relationship between level of child behavioural, emotional, attachment- and trauma-related difficulties and foster carer parenting stress and satisfaction will be addressed with a product of coefficients mediation linked with bootstrapping analysis (Preacher & Hayes, 2008; Hayes, 2009). Child emotional, behavioural, attachment and trauma-related difficulties will act as the independent variables, foster carer parenting stress

and satisfaction as the dependent variables while the measure of the perceived quality of the child-foster carer relationship will act as the potential mediator, all at both time points. This mediation method has been chosen as it is suitable for smaller numbers of participants, does not assume normality of the data and is bias-corrected (Preacher and Hayes, 2008). Finally, in keeping with Whenan *et al.* (2009), Farmer *et al.* (2005) and Morgan and Baron (2011) these analyses will be re-run with measures of foster carer wellbeing, age of foster child and length of time in placement as covariates, as well as any other identified covariates.

Project Management: Timetable

10) Outline a timetable for completion of key stages of the project. (E.g. ethics submission, start and end of data collection, data analysis, completion of systematic review).

Ethics submission	Sept–Dec 2014
1 st data collection period	Jan 2015–July 2015
6 month follow-up data collection	July 2015–Jan 2016
Data analysis	July 2015–Sept 2016
Completion of systematic review	April 2016
Submission of thesis	May 2017
Viva	June 2017
Corrections	Aug 2017
Dissemination	Sept 2017

Management of Risks to Project

11) Please summarise the main potential risks to your study, the perceived likelihood of occurrence of these risks and any steps you will or have taken to reduce these risks. Outline how you will respond to identified risks if they should occur.

The main potential risks to this research study are listed below, with proposed steps that will be taken to reduce such risks.

1. Service agreement to take part

In order to increase the likelihood that services will agree to take part in this research, performance between individual services will not be analysed. Where possible, the researcher will attend foster carer support groups in order to promote and maintain awareness of the study.

2. Participant recruitment

Recruitment is currently planned to start in January 2015 and will continue until July 2015; according to estimates a response rate of 20% is needed, whilst mean response rates for similar studies with foster carers are 30.2%. The long recruitment period will maximise recruitment and allow time for troubleshooting should any unforeseen problems arise. If, for example, it looks as if fewer than expected participants will be recruited, neighbouring local authorities

will also be approached for ethical approval. Additionally, the possibility of using an internet-based approach to recruitment could also be explored in order to increase recruitment, for example advertising the study on the Fostering Network Scotland.

3. Social desirability bias

The validity of self-report measures can be compromised by the phenomenon of social desirability bias whereby participants tend to present a favourable image of themselves and respond to items in a socially desirable manner (Nederhof, 1985). It is hoped that self-administration of questionnaires will reduce the likelihood of foster carers providing socially desirable responses. It will also be stressed to participants that neither results within or between individual services will be analysed. In addition, the PSI-SF includes a defensive responding scale which would indicate whether foster carers' responses contain such bias. Post-hoc statistical analysis could be carried out to determine whether there are any differences in participants who show defensive responding on the PSI-SF.

4. Missing data

Participants may miss an item on the self-report questionnaires, or a whole questionnaire. Questionnaires will be held together through punched holes in order to minimise the chance that a whole questionnaire will be missed. There will be a sheet included in the packs for participants to tick a box for each completed questionnaire before they return the pack to encourage checking of their completion by the participants themselves. Any missing data will be recorded and a missing data analysis, if appropriate, will be incorporated into statistical analyses.

5. Potential distress to participants

Informed consent will be obtained from all participants before proceeding with the study procedure. The measures being used in this study are widely used in research and clinical practice; nevertheless, it is possible that asking foster carers to focus on these areas may cause distress. The participant information sheet will direct participants to raise any arising concerns with their social worker, or their General Practitioner. Contact details for the researcher will also be provided so that participants can contact them with any questions regarding the study.

Knowledge Exchange

12) How do you intend to report and disseminate the results of the study?

This research will be written for submission as part fulfilment for the Doctorate in Clinical Psychology, and will include a systematic review and journal article(s). These will be submitted to a relevant peer reviewed journal(s). The results of the study will also be presented locally within NHS Forth Valley and fed back to Children and Families Social Work Services and independent fostering agencies involved.

13) What are the anticipated benefits or implications for services of the project? (E.g. If this is an NHS based project, in what way(s) is the project intended to benefit the NHS?)

The benefits of this study are far reaching. It is the aim of fostering services to provide a safe and stable family placement for children. Whilst many previous studies have

investigated the prevalence of foster children's behavioural and emotional difficulties using the SDQ this study constitutes, to the author's knowledge, the first investigation concerning the prevalence of attachment-related difficulties using both the BAC-C and the RPQ. The use of such specific measurement tools may inform services in terms of the prevention and identification of, and intervention for, the relational difficulties manifested by children in foster care. In addition, given the UK-wide shortage of foster carers and the numbers that leave the workforce, a greater understanding of the satisfaction and stress of foster carers, particularly in relation to the attachment-related difficulties of their foster child, may help services better support them. Finally, understanding predictors of placement breakdown will impact on interventions designed for preventing their occurrence. Resources can potentially be focused on particular indicators in order to support the foster carer to maintain the placement, and improve their own functioning as a foster carer. Ultimately if placement breakdown can be reduced, according to the research, the future mental health potential of the children in question may be more favourable.

14) Are there any potential costs to this project?

Outline any potential financial costs to the project, including the justification for the costs (why are these necessary for the research project?) and how funding will be obtained for these costs (how will cost be met?). Please separate these into potential costs for the University and potential costs for your NHS Health board and note that you should ask your NHS Health board to meet stationery, printing, postage and travel costs.

PSI-SF scale

Cost of kit (manual and 25 forms): £120

Cost for 25 forms x2: £120

Total cost: £240

16) Key References

Abidin, R. R. (1995). *Parenting Stress Index: Professional Manual* (3rd ed.). Odessa, FL: Psychological Assessment Resources, Inc.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations.

Journal of Personality and Social Psychology, 51, 1173-1182.

Beckett, C., Cross, R., & McConnell, P. (2014) Using the RPQ to screen for Reactive Attachment Problems in looked after children.

Cicchetti, D. & Rogosch, F.A. (1997). The role of self-organization in the promotion of resilience in maltreated children. *Development and Psychopathology*, 9, 797-815.

Cicchetti, D., Rogosch, F.A. & Toth, S.L. (2006). Fostering secure attachment in infants in maltreating families through preventive interventions. *Developmental Psychopathology*, 18(3), 623-649.

Cohen, J. (1992) A power primer. *Psychological Bulletin*, 112(1), 155-159.

Crawford, J.R. & Henry, J.D. (2003). The depression anxiety stress scales: normative data and latent structure in a large non-clinical sample. *British Journal of Clinical Psychology*, 42, 111-131.

Department for Children Schools and Families and Department of Health (2009). *Statutory guidance on promoting the health and well-being of looked after children*. Department for Children Schools and Families and Department of Health, London.

Dozier, M., Highley, E., Albus, K.E. & Nutter, A. (2002). Intervening with foster infants' caregiver: targeting three needs. *Infant Mental Health Journal*, 23(5), 541-554.

Driscoll, K., & Pianta, R. C. (2011). Mothers' and fathers' perceptions of conflict and closeness in parent child relationships during early childhood. *Journal of Early Childhood and Infant Psychology*, 7, 1-24.

Dumville, J.C., Torgerson, D.J., & Hewitt, C.E. (2006). Reporting attrition in randomised controlled trials. *British Medical Journal*, 22, 332(7547), 969-971.

Farmer, E., Lipscombe, J. & Moyers, S. (2005). Foster carer strain and its impact on parenting and placement outcomes for adolescents. *British Journal of Social Work*, 35(2), 237-253.

Fostering Network (2014). Scottish minister supports foster care fortnight. Available from: <http://www.fostering.net/news/2014/scottish-minister-supports-foster-care-fortnight#.U7z83GdwZdg>. [Last accessed 9th July 2014].

Fritz, M.S. & MacKinnon, D.P. (2007). Required sample size to detect the mediated effect. *Psychological Science*, 18(3), 233-239.

Goodman, A. & Goodman, R. (2012). Strengths and Difficulties Questionnaire scores and mental health in looked after children. *British Journal of Psychiatry*, 200(5), 426-427.

Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire (SDQ) *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 1337-1345.

Goodman, R. & Scott, S. (1999). Comparing the Strengths and Difficulties Questionnaire and the Child Behaviour Checklist: is small beautiful? *Journal of Abnormal Child Psychology*, 27, 17-24.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: a research note. *Journal of Child Psychology and Psychiatry*, 38, 581-586.

Green, J. & Goldwyn, R. (2002). Annotation: attachment disorganisation and psychopathology: new findings in attachment research and their potential implications for developmental psychopathology in childhood. *Journal of Child Psychology and Psychiatry*, 43(7), 835-846.

Guttman-Steinmetz, S. & Crowell, J.A. (2006). Attachment and externalizing disorders: a developmental psychopathology perspective. *Journal of the American Academy of Child and Adolescent Psychiatry*, 45(4), 440-451.

Haskett, M.E., Ahern, L.S., Ward, C.S. & Allaire, J.C. (2006). Factor structure and validity of the Parenting Stress Index-Short Form. *Journal of Clinical Child and Adolescent Psychology* 35(2), 302-312.

Hayes, A. F. (2009). Beyond Baron and Kenny: statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408-420.

Herjanic, B. & Reich, W. (1997). Development of a structured psychiatric interview for children: agreement between child and parent on individual symptoms. *Journal of Abnormal Child Psychology*, 25, 21-31.

Herring, S., Gray, K., Taffe, J., Tonge, B., Sweeney, D. & Einfeld, S. (2006). Behaviour and emotional problems in toddlers with pervasive developmental disorders and developmental delay: associations with parental mental health and family functioning. *Journal of Intellectual Disability Research*, 50(12), 874-882.

Johnston, C. & Mash, E.J. (1989). A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology*, 18, 167-175.

- Lovibond, S.H. & Lovibond, P.F. (1995). *Manual for the Depression Anxiety Stress Scales* (2nd Ed.) Sydney: Psychology Foundation. ISBN 7334-1423-0.
- Minnis, H., Reekie, J., Young, D., O'Connor, T., Ronald, A., Gray, A. & Plomin, R. (2007). Genetic, environmental and gender influences on attachment disorder behaviours. *British Journal of Psychiatry*, 190, 490-495.
- Minnis, H., Macmillan, S., Pritchett, R., Young, D., Wallace, B., Butcher, J., Sim, F., Baynham, K., Davidson, C. & Gilberg, C. (2013). Prevalence of reactive attachment disorder in a deprived population. *British Journal of Psychiatry*, 202(5), 342-346.
- Morgan, K., & Baron, R. (2011). Challenging behaviour in looked after young people, feelings of parental self-efficacy and psychological wellbeing in foster carers. *Adoption and Fostering*, 35(1), 18-32.
- Nederhof, A.J. (1985). Methods of coping with social desirability bias: a review. *European Journal of Social Psychology*, 15, 263-280.
- National Institute for Health and Clinical Excellence (NICE) (2013). *Nice Clinical Guideline PH28: Looked after children and young people*. NICE: London.
- Oosterman, M., Schuengel, C., Wim Slot, N., Bullens, R.A.R. & Doreleijers, T.A.H. (2007). Disruptions in foster care: a review and meta-analysis. *Children and Youth Services Review*, 29, 53-76.
- Pecora, P. J., Kessler, R. K., Williams, J., O'Brien, K., Downs, A. C., English, D., White, C.R., Hiripi, E., Wiggins, T. & Holmes, K. (2005). *Improving family foster care: Findings from the Northwest Foster Care Alumni Study*. Seattle, WA: Casey Family Programs. www.casey.org
- Pianta, R.C. (1995). *Child Parent Relationship Scale*. Charlottesville, Virginia: Curry School of Education, University of Virginia.
- Plant, K.M. & Sanders, M.R. (2007). Predictors of care-giver stress in families of preschool-aged children with developmental disabilities. *Journal of Intellectual Disability Research*, 51(2), 109-124.

- Preacher, K.J & Hayes, A.F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behaviour Research Methods*, 40, 879-891.
- Rushton, A. & Dance, C. (2004). The outcomes of late permanent placements: the adolescent years. *Adoption and Fostering*, 28(1), 49-58.
- Schofield, G. & Beek, M. (2006). Attachment handbook for foster care and adoption. British Association for Adoption and Fostering, London.
- Seltzer, M.M, Greenberg, J.S., Floyd, F.J. & Hong, J. (2004). Accommodative coping and well-being of midlife parents of children with mental health problems or developmental disabilities. *American Journal of Orthopsychiatry*, Vol 74(2), 187-195.
- Sinclair, I. & Wilson, K. (2003). Matches and mismatches: the contribution of carers and children to the success of foster placements. *British Journal of Social Work*, 33, 871-884.
- Tarren-Sweeney, M.J., Hazell, P.L. & Carr, V.J. (2004). Are foster parents reliable informants of children's behaviour problems? *Child: care, health and development*, 30(2), 167-175.
- Tarren-Sweeney, M. (2007). The Assessment Checklist for Children - ACC: A behavioural rating scale for children in foster, kinship and residential care. *Children and Youth Services Review* 29(5), 672-691.
- Tarren-Sweeney, M. (2013a). The Brief Assessment Checklists (BAC-C, BAC-A): Mental health screening measures for school-aged children and adolescents in foster, kinship, residential and adoptive care. *Children and Youth Services Review* 35(5), 771-779.
- Tarren-Sweeney, M. (2013b). An investigation of complex attachment and trauma related symptomatology among children in foster, kinship and residential care. *Child Psychiatry and Human Development*, 44(6), 727-741.
- Taylor, N. (2009). *Foster carer factors which predict placement success for young people aged 12-18 years*. Unpublished doctoral thesis, University of Birmingham.

Whenan, R., Oxlad, M. & Lushington, K. (2009). Factors associated with foster carer well-being, satisfaction and intention to continue providing out of home care. *Children and Youth Services Review*, 31, 752-760.

Zeanah, C.H., Berlin, L.J. & Boris, N.W. (2011). Practitioner review: clinical applications of attachment theory and research for infants and young children. *Journal of Child Psychology and Psychiatry*, 52(8), 819-833.

Appendix 21 Data Exploration- missing data

Missing data points

	Data points	% missing
SDQ	2	0.002
Teacher SDQ	3	0.004
RPQ	3	0.006
Teacher RPQ	4	0.013
BAC-C	12	0.012
CPRS	4	0.005
PSOC	20	0.022
PSI-SF	62	0.034

Appendix 22 Data exploration – assessment of possible covariates

Child demographics

Child age showed small and statistically significant correlation with the PSOC, supporting its inclusion as a covariate in regression analyses using this variable. No significant correlations were found between child gender and any of the outcome variables.

Assessment of placement factors as possible covariates

Length of current placement showed a small and statistically significant correlation with the PSOC, supporting its inclusion as a covariate in regression analyses using this variable. No significant correlations were found between total time LAAFH, number of previous placements, or number of previous placement breakdowns and any of the outcome variables.

Foster carer demographics

Foster carer experience (length of time as a foster carer) showed medium and statistically significant correlations with the all outcome variables, supporting its inclusion as a covariate in regression analyses. No significant correlations were found between relationship status of foster carer and any of the outcome variables.

Relationships between child and foster carer demographics and foster carer variables

	CPRS	PSOC	PSI-SF
Child age	.014	.282*	-.066
Child gender	0.790 ¹	-1.031 ¹	1.738 ¹
Time in placement	-.005	.282*	.141
Total time LAAFH	-.001	.060	.024
Number of previous placements	-.033	-.054	.024
Number of placement breakdowns	-.034	-.110	.061
Foster carer relationship status	-0.238 ¹	-0.249 ¹	0.489 ¹
Total number of children at home	-.061	.168	-.016
Length of experience	.373**	.429**	-.369*

* $p < .05$, ** $p < .01$ (2-tailed)

¹ Independent samples t-test